XR-F21RDS

SERVICE MANUAL

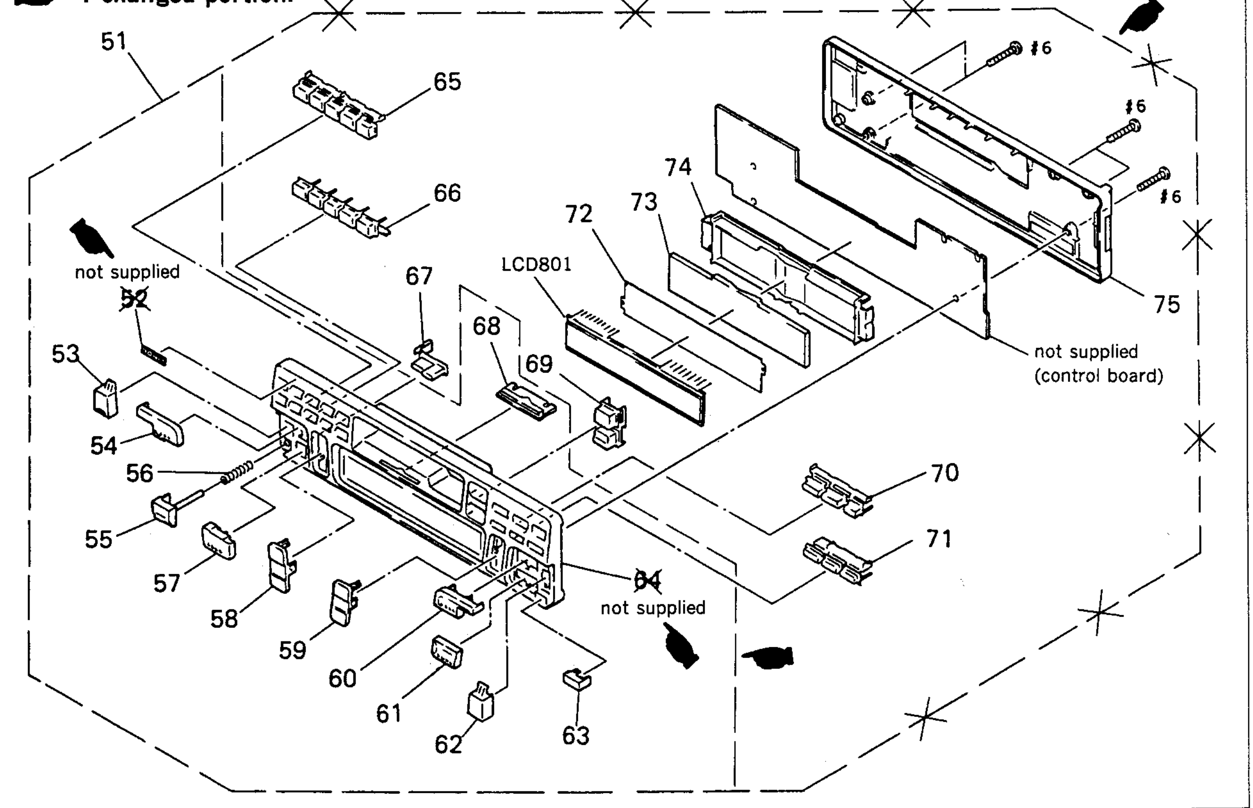
AEP Model
UK Model

XR-F21RDS has been changed in design of the front panel and ACCESSORIES & PACKING MATERIALS from the XR-C720RDS. The difference from the XR-C720RDS are only described herein. For other information, see the service manual for XR-C720RDS.

Difference of Part List

Page	XR-C720RDS				XR-F21RDS		
	Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
51	*51	A-3291-271-A	PANEL ASSY, FRONT		X-3372-410-1	PANEL SUB ASSY, FRONT	
	52	3-904-194-01	EMBLEM (NO. 2.5), SONY			————	
	64	X-3370-275-1	PANEL SUB ASSY			————	

☛ : **changed portion.**



51
65
66
not supplied
~~52~~
53
54
56
55
57
58
59
60
61
62
63
67
68
69
LCD801
72
73
74
75
ƒ6
ƒ6
ƒ6
not supplied
(control board)
70
71
~~64~~
not supplied

Note :

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

FM/MW/LW CASSETTE CAR STEREO

SONY®

Page	XR-C720RDS				XR-F21RDS		
	Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
54		1-467-559-22	REMOTE COMMANDER (RM-X40)			————	
		1-473-067-31	REMOTE COMMANDER (RM-X2S)			————	
		3-798-362-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN)			————	
		3-798-362-41	MANUAL, INSTRUCTION (SPANISH, ITALIAN)			————	
		3-798-362-71	MANUAL, INSTRUCTION (DUTCH, SWEDISH, PORTUGUESE) (AEP, UK)			————	
		3-798-363-11	MANUAL, INSTRUCTION, INSTALL (ENGLISH, FRENCH, GERMAN, ITALIAN)			————	
		3-798-363-41	MANUAL, INSTRUCTION, INSTALL (SPANISH, DUTCH, SWEDISH, PORTUGUESE) (AEP, UK)			————	
		X-3369-817-1	BRACKET ASSY			————	
55	* 151	3-916-161-01	FRAME, FITTING		3-937-712-11	FRAME	
	157	1-765-081-11	CORD (WITH CONNECTOR)		1-777-260-11	CORD (WITH CONNECTOR)	

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

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Personal & Mobile Communication Company

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XR-C720RDS

SERVICE MANUAL

7538

AEP Model
UK Model

SONY
R·D·S EON XR-C720RDS
TAPE
DSPL
SENS
OFF
PTY
DSP
LIST
PGM
SEL
MD/CD
AF/TA
SEEK AMS
TUNER
RELEASE

Model Name Using Similar Mechanism	XR-C510RDS
Tape Transport Mechanism Type	MG-50DX-39

SPECIFICATIONS

Cassette player section

Tape track	4-track 2-channel stereo
Wow and flutter	0.08 % (WRMS)
Frequency response	30 – 22,000 Hz
Signal-to- noise ratio	

Cassette type	Dolby B NR	Dolby C NR	Dolby NR off
TYPE II, IV	67 dB	73 dB	61 dB
TYPE I	64 dB	70 dB	58 dB

Tuner section

FM

Tuning range	87.5 – 108.0 MHz
Antenna terminal	External antenna connector
Intermediate frequency	10.7 MHz
Usable sensitivity	8 dBf
Selectivity	75 dB at 400 kHz
Signal-to-noise ratio	65 dB (stereo), 68 dB (mono)
Harmonic distortion at 1 kHz	0.5 % (stereo), 0.3 % (mono)
Separation	35 dB at 1 kHz
Frequency response	30 – 15,000 Hz
Capture ratio	2 dB

MW/LW (AEP, UK model)/SW (German model)

Tuning range	MW: 531 – 1,602 kHz LW: 153 – 281 kHz SW: 5,950 – 6,205 kHz
Antenna terminal	External antenna connector
Intermediate frequency	10.71 MHz/450 kHz
Sensitivity	MW: 30 µV LW: 50 µV SW: 50 µV

Power amplifier section

Outputs	Speaker outputs (sure seal connectors)
Speaker impedance	4 – 8 ohms
Maximum power output	30 W × 4 (at 4 ohms)

—Continued on next page—

MICROFILM

FM/MW/LW CASSETTE CAR STEREO

AEP/UK Model

FM/MW/SW CASSETTE CAR STEREO

German Model

SONY®

7538

General

Output lead	Power antenna relay control lead Power amplifier control lead
Tone controls	Bass ±8 dB at 100 Hz Treble ±8 dB at 10 kHz
Power requirements	12 V DC car battery (negative ground)
Dimensions	Approx. 188 × 58 × 176 mm (w/h/d)
Mounting dimension	Approx. 182 × 53 × 156 mm (w/h/d)
Mass	Approx. 1.2 kg
Supplied accessories	Power connecting cord (1) Cord with connector (AUDIO) (1) Mounting hardware (1 set) Front panel case (1) Rotary Commander RM-X2S Wireless remote commander RM-X40

Design and specifications are subject to change without notice.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol ▯▯ are trademarks of Dolby Laboratories Licensing Corporation.

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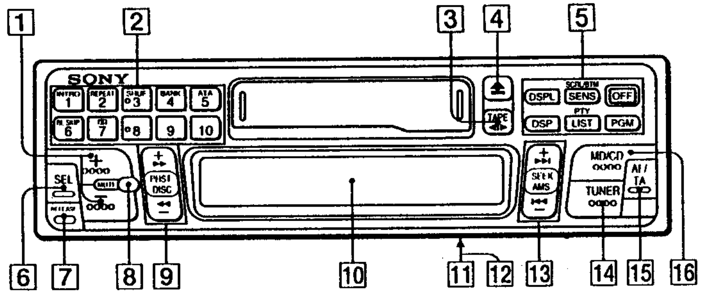
Location of Controls



Refer to the pages in ● for details.

1. + – (volume/sub output level*/bass/treble/balance/fader control) button ⑧⑬⑳㉑㉒㉓㉕㉖㉗㉘㉙
   - * *XR-C720RDS only*
2. During radio reception:
   Preset number buttons ⑨

   During tape/CD/MD playback:
   - INTRO 1 INTRO button ⑦⑨⑭⑯⑰
   - REPEAT 2 REPEAT button ⑧⑨⑬⑯⑰
   - SHUF 3 SHUF button ⑫⑰
   - BANK 4 BANK button ⑭㉓㉔
   - ATA 5 ATA (Automatic Tuner Activation) button ⑧㉓
   - BL.SKIP 6 BL.SKIP button ⑧⑭
   - DD 7 DD (Dolby B NR or C NR) button ⑦⑭

   During CD/MD playback:

   Direct disc selection button ⑯
   For CD changers: INTRO 1 – 10
   For MD changers: INTRO 1 – BANK 4
3. TAPE/◀I▶ (playback/transport direction change) button ⑦㉕㉖㉗㉘㉚
4. ⏏ (eject) button ⑦⑬
5. DSPL (display mode change/time set) button ⑥⑮㉒

   SCRL/BTM SENS (Sensitivity adjust/Scroll/Best Tuning Memory Function) button ⑧⑨⑪⑮

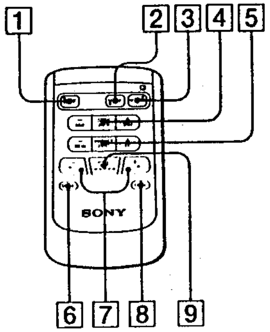
   OFF button ⑤⑥⑦⑬

   DSP (DSP mode on • off/select) button ㉕㉖㉗㉘㉙

   PTY LIST (custom file mode select • set/list up) /PTY (programme type) button ⑫⑬⑰⑱㉑㉒㉓㉙

   PGM (programme memory function) button ⑱⑲⑳㉑
6. SEL (control mode select) button ⑧⑫⑬⑭⑲⑳㉑㉒㉓㉕㉖㉗㉘㉙㉚
7. RELEASE (front panel release) button ⑤㉚
8. MUTE button ⑬
9. PRST (preset) /DISC button ⑦⑨⑩⑯
10. Display window
11. POWER SELECT switch (located on the bottom of the unit)
    See "POWER SELECT Switch" in the installation/Connections manual.
12. LINE-OUT/IN SELECT switch (located on the bottom of the unit)
    See "LINE-OUT/IN SELECT Switch" in the Installation/Connections manual.
13. SEEK/AMS button ⑦⑧⑮
14. TUNER (radio on/band select) button ⑦⑧⑨⑩㉕㉖㉗㉘㉚
15. AF/TA (alternative frequency/traffic announcement) button ⑪⑫
16. MD/CD (disc play • MD/CD changer select) button ⑦⑮⑯㉒㉕㉖㉗㉘㉚

Wireless Remote Commander (RM-X40)



Buttons with the same function as those on the master unit.

1. OFF button
4. SEEK/AMS button
5. PRESET/DISC button
   You cannot do the manual search and manual tuning with the remote commander.
6. MUTE button
7. – + button
8. DSPL button
9. SEL button

Different function buttons

2. MODE button

   During Tape playback:
   Changes the playback side of the cassette.

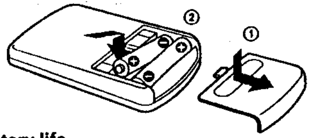
   During CD/MD playback:
   Selects CD/MD changers when several CD/MD changers are connected.

   During radio reception:
   Changes the preset groups within the band received.
   FM1 ←→ FM2 MW ←→ LW(SW)
3. SOURCE button
   Press to select program sources.
   Each time the button is pressed, the program source mode changes as follows:

$$\to \text{FM} \to \text{MW} \to \text{CD} \to \text{MD} \to \text{TAPE} \to$$

When the POWER SELECT switch is set to the ⑧ position, the unit cannot be operated with the wireless remote commander unless the MD/CD or TUNER button on the unit is pressed or a cassette is inserted to activate the unit first.

Installing the Batteries



Battery life
When the batteries become weak, you will not be able to operate the unit with the remote commander. Battery life is approx. six months although it depends on the way of use.

Notes on batteries
To avoid damage from battery leakage and subsequent corrosion:
— insert the batteries by matching the "+" and "–" on the batteries to the "+" and "–" in the battery compartment
— do not use an old battery with a new one, or different types of batteries together
— remove the batteries when you do not use the unit for a long period of time
— do not charge the batteries.

If any battery leakage occurs, replace the batteries with new ones after cleaning the battery compartment.

Notes on wireless remote commander
- *Do not leave the remote commander in a location near any heat sources, or in a place subject to direct sunlight (especially on the dashboard in summer etc.).*
- *When you park your car in direct sunlight, detach the remote commander and place it in a location such as the glove-box, where it will not be subjected to direct sunlight.*

Setting the Clock

The clock has a 24-hour digital indication.

For example, setting it to 10:08

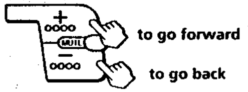
1 **Display the time.**
(Press the OFF or the DSPL button during unit operation.)

2 **Press the DSPL button for more than two seconds.**

1:00

The hour digit blinks.

Set the hour digits.



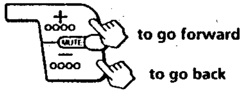
10:00

3 **Press the ⇲ button momentarily.**

10:00

The minute digit blinks.

Set the minute digits.



10:08

4 **Press the DSPL button momentarily.**

10:08

The clock activates.

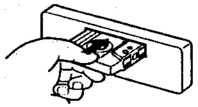
Note

If the POWER SELECT switch on the bottom of the unit is set to the B position, the clock cannot be set unless the power is turned on. Set the clock after you have turned on the radio, or started CD, MD or tape playback.

Cassette Player Operation

Listening to Tape Playback

After inserting the cassette, playback will start automatically.



If a cassette is already inserted, press the TAPE button to start playback.
If you press during playback, the tape transport direction will change.

Indication of Tape Transport Direction

FWD PLAY

The side facing up is being played.

REV PLAY

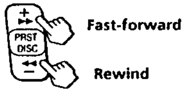
The side facing down is being played.

To stop playback,
eject the cassette by pressing the ⏏ button or press the OFF button.
Playback stops also when you select another source (radio, CD or MD) by pressing the TUNER or MD•CD button.

Ejecting the Cassette

Press the ⏏ button.

To Fast-wind the Tape



To start playback during rewinding or fast-forwarding, press the TAPE button.

Playing a Tape Recorded in the Dolby B-NR or C-NR System

Press the 7 button when you want to listen to a tape recorded in Dolby B-NR or C-NR system. → "ᴅᴅ" appears on the display.

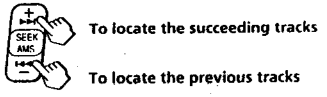
Each time you press the 7 button, the mode changes as follow:

→ Dolby B-NR → Dolby C-NR → Cancel ↩

Locating the Beginnings of the Tracks

— AMS (Automatic Music Sensor) Function

During playback, press either side of the SEEK/AMS button the number of times you wish to skip the tracks.



SEEK AMS
To locate the succeeding tracks
To locate the previous tracks

Up to nine tracks can be skipped.

If the blanks between the tracks are shorter than four seconds, or if there are noises, the AMS function will not work. Also, the unit may read long sections of low volume music or quiet sections on a track as blanks between tracks.

Searching the Desired Track — Intro Scan Function

Press the INTRO 1 button during playback.
→ "INTRO" appears on the display.
The first 10 seconds of all the tracks are played. When you find the desired track, press the button once more. The unit returns to the normal playback mode.

Playing Tracks Repeatedly

— Repeat Play Function

Press the REPEAT 2 button during playback.
→ "REP" appears on the display.
When the currently played track is over, it will be played again from the beginning.
To cancel this mode, press the button again.

Radio Reception during Fast-forwarding or Rewinding of a Tape

— ATA (Automatic Tuner Activation) Function

Press the ATA 5 button during playback.
→ "ATA" appears on the display.
When fast-forwarding or rewinding with the PRST/DISC button, the tuner will turn on automatically.

Skipping Blanks Automatically during Tape Playback — Blank Skip Function

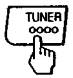
Press the BL.SKIP 6 button during playback.
→ "BL.SKIP" appears on the display.
Blanks longer than eight seconds will be automatically skipped during tape playback.

Radio Reception

Searching for the Stations Automatically

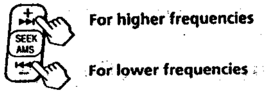
— Automatic Tuning

1 Select the desired band.



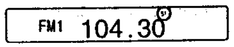
FM1 → FM2 → MW → LW (SW) → FM1

2 Press either side of the SEEK/AMS button momentarily to search for the station (automatic tuning).



The scanning stops when a station is received. Press either side of the button repeatedly until the desired station is received.

When an FM stereo programme with a sufficient signal strength is tuned in,



the "ST" indication will appear.

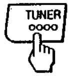
To avoid the automatic tuning from stopping on stations too frequently (local seek mode), press the SCRL/BTM SENS button momentarily to get the "LCL" indication.
Only the stations with relatively strong signals can be tuned in. The local seek mode functions only when the automatic tuning is in operation.

If FM Stereo Reception is Poor — Monaural Mode

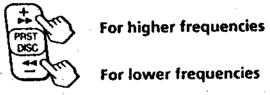
Press the SCRL/BTM SENS button momentarily.
→ "MONO" appears on the display.
The sound will improve, but it will become monaural.

Tuning in by Adjusting the Frequency — Manual Tuning

1 Select the desired band.



2 Press and hold either side of the PRST/DISC button.
Release the button when the desired station is received.



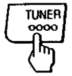
PREVENTING ACCIDENTS!
When tuning in during driving, use the automatic tuning and the memory preset tuning instead of the manual tuning.

Memorizing Stations Automatically

— BTM (Best Tuning Memory) Function

This function selects from the currently received band the stations with the strongest signals and memorizes them in order of their frequency.

1 Select the desired band.



2 Press the SCRL/BTM SENS button for more than two seconds.

- When there is no preset number indicated on the display window, stations will be stored on all preset number buttons on the currently selected band.
- When there is a preset number indicated on the display window, the unit will store stations on all preset number buttons from the one currently displayed.

For example, when you select FM2 and preset number 3 is displayed,
the operation will start from preset number 3 on FM2, and will stop at preset number 10 on FM2.

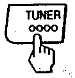
3 FM1 and FM2 only:
Press preset number button INTRO 1 momantarily, then press again for about two seconds until you hear a beep tone.
→ The station will be stored.
Repeat this operation with preset number buttons REPEAT 2 through 10.

Notes

- *When "AF OFF" is displayed and you activate BTM, the unit will store only stations not transmitting RDS data. Depending on reception conditions however, it may happen that RDS stations are stored.*
- *When storing only RDS stations (page 11), step 3 is not necessary.*

Memorizing Only the Desired Stations

1 Select the desired band.



2 Tune in the station which you wish to store on the preset number button.

3 Keep the desired preset number button (INTRO 1 to 10) pressed for about two seconds until you hear a beep tone.

The number of the pressed preset number button appears on the display window.

Up to 10 stations on each band (FM1, FM2, MW and LW(SW)) can be stored on the preset number buttons in order of your choice. Therefore, 20 stations can be memorized on FM.
If you try to store another station on the same preset number button, the previously stored station will be erased.

Receiving the Memorized Stations

1 Select the desired band.

2 Press momentarily the preset number button on which the desired station is stored.

Note
If you press the preset number button for more than two seconds, the currently received station will be memorized again. To receive the previously memorized station, make sure that the preset number button is pressed only momentarily.

Press either side of the PRST/DISC button momentarily to receive in order the stations stored in the memory (Preset Search Function).

Press momentarily
1 → 2 → ..... → 9 → 10 → 1 → ...

Press momentarily
1 → 10 → 9 → ..... → 2 → 1 → ...

RDS Functions

Overview of the RDS Function

RDS (Radio Data System) is a system which uses FM radio waves to receive digital signals. Receiving RDS data with your car stereo unit allows it to use a variety of services. There are several ways to use these services. For instance, you can receive information such as traffic announcements and station names, or you can cause the unit to automatically retune to the strongest signal that is broadcasting the same programme. So even if you travel a long distance, it is still possible to listen to the same programme without having to retune manually again and again. Another function allows it to receive traffic announcements during tape, CD or MD playback. RDS offers various functions, but depending on the country or region, not all of these are available. Following information explains the RDS functions of this unit.

Notes
- *In case of weak signals or other poor reception conditions, the RDS functions may not work properly.*
- *If the FM station currently received does not transmit RDS data, the functions described below will not work.*

Displaying the Station Name

By using RDS data, the name of the station currently received can be displayed.

Select an FM station. → If it is a station transmitting RDS data, the station name will appear on the display.

BBC R1

When "*" appears in addition to the usual frequency indication, an RDS station is being received.

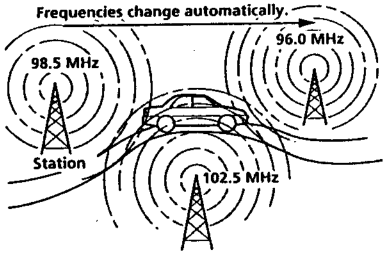
Changing the displayed items
Each time you press the DSPL button, the display on the displayed items change as follows:

→ Frequency → Time → Station Name

When "NO Name" ("NO NAME" for the XR-C620RDS) is displayed instead of the station name, the currently received station does not transmit RDS data. After some seconds, "NO Name" ("NO NAME" for the XR-C620RDS) will disappear, and the frequency will be displayed.

Listening to the same Programme without Manual Retuning even if the Location has changed — AF Function

Using "AF" (List of Alternative Frequencies), to automatically tune to that frequency among the frequencies of the currently received station, which carries the strongest signal in the respective region. As result, you can continuously listen to the same programme during a long-distance drive without repeated manual retuning.



1 Select an FM station.

2 Press the button to get "AF" displayed.

Notes
- *When the currently received frequency is weak and the same programme cannot be received with another frequencies, "NO AF" will be indicated.*
- *When automatic tuning (page 8) is activated while "AF" is displayed, only FM stations which transmit RDS data will be received.*
- *When you press the AF/TA button while an MW or LW (SW) station is received, FM1 will be automatically selected.*

Getting the Stored RDS Stations tuned in from the Broadcasting Networks

When the unit stores an RDS station transmitting the AF data on a preset number button, it stores not only its frequency but also its AF and PI (Programme Identification) data. The unit will store this data in its memory no matter whether the AF function is ON or OFF. Using the AF function, you can select a better signal station by re-tuning within the same broadcasting network of the memorized station.

Press the button, then press the preset number button.

Note
If by the AF data no other station can be found in the network of the memorized station, "PS" will blink for eight seconds. Then, "PI seek" will be displayed, and the unit will search for a station with the same PI data. If the unit finds no other station with the same PI data, it will return to the original station.

Listening to a Regional Programme

Press the button for more than two seconds. → "REG" appears on the display.

To cancel, press again for more than two seconds.

Note
The initial setting is "Regional ON".

This function cannot be activated in the United Kingdom and some other areas.

Local Link Function (United Kingdom only)
When local stations stored on the preset number buttons are poorly received, or when you want to change to another local station, use this function to activate automatic search for other local stations and to tune to them one by one. Within five seconds after its reception started, press the preset number button of the local station you want to change, and keep the button pressed. Repeat this procedure several times until the desired local station is received.

Storing only RDS stations
The BTM function (page 9) allows it to store only RDS stations on the preset number buttons; activate the AF function, then press the (SENS) button for two seconds. When "AF OFF" is displayed and you activate BTM, the unit will store only stations not transmitting RDS data.

Listening to Traffic Announcements

By using TA (Traffic Announcement) and TP (Traffic Programme) data, a station broadcasting traffic announcements can be automatically received. Even during tape, CD or MD playback you can hear traffic announcements, as the unit continues searching for such a station, and will automatically change to FM reception when a traffic announcement starts.

Press the button to get "TA" displayed. → The unit will start to search for traffic information stations.
When a station transmitting a traffic announcement is found, "TP" will be displayed. During reception of the announcement, the "TA" indication will blink. The blinking will stop when the traffic announcement is over.

The TA function works also during tape, CD or MD playback.

continue to next page →

Press the AF/TA button during tape, CD or MD playback. → "TA" appears on the display.
The unit will start to search for traffic announcements. When an announcement is received, tape, CD or MD playback will stop, and the traffic information station can be heard.
In case you press the AF/TA button while an MW or LW (SW) station is received, the unit will automatically change to FM reception.

Cancelling the Currently Received Traffic Announcement
Press the AF/TA button momentarily.

Cancelling the TA mode
Press the AF/TA button until "AF/TA OFF" appears on the display.

Note
If no traffic information stations can be received, "NO TP" will blink for about four seconds, and then the search for other stations transmitting traffic announcements will start.

Each time you press the AF/TA button, the display window changes as follows:

→ AF ON → TA ON → AF/TA ON
AF/TA OFF ←

The "EON" Indication
When both "TA" and "EON" are displayed, this means that in addition to the currently received station, another station too is broadcasting a traffic announcement.

Presetting the Volume of Traffic Announcements

It is possible to hear the traffic announcements at a previously set volume level. For example, even if volume is turned to zero, it will automatically change to the preset level when a traffic announcement starts. (In case the current volume level is higher than the preset level, the current level will not change.)

1 **Select an FM station and the desired volume level.**

2 **Press button SHUF 3 while pressing the SEL button.**
When you hear a beep tone, the setting is completed.

Receiving Emergency Announcements
In case of danger through an emergency or a natural disaster, RDS stations transmit emergency announcements to warn the drivers in that area. Such announcements can be received only when the AF or TA functions are activated. When an emergency announcement is received, tape, CD or MD playback will stop, the unit will automatically change to FM, and the information can be heard.

Selecting the Programme Type

Some stations use RDS to distinguish the types of their programmes during broadcasting.

There are following programme types:

Program types	**Display**
News	NEWS
Current Affairs	AFFAIRS
Information	INFO
Sport	SPORT
Education	EDUCATE
Drama	DRAMA
Culture	CULTURE
Science	SCIENCE
Varied	VARIED
Pop	POP M
Rock	ROCK M
Middle of the Road	M.O.R. M
Light Classical	LIGHT M
Serious Classics	CLASSICS
Other Music Types	OTHER M
Not specified *(when the station does not specify the programme type)*	NONE

1 **Press the PTY LIST button during FM reception. → "PTY" appears on the display.**
If the currently received station is transmitting PTY (programme type selection) data, one of above-shown programme type names will be displayed. If the currently received station is no RDS station, or if the RDS data has not been read, "- - - - -" will be displayed. In this case, you can select "NEWS" or other programme types by pressing the PTY LIST button.

PTY INFO

2 **Press again within five seconds.**
The programme types will be displayed in the order shown above.

PTY SPORT

3 **When the desired programme type is displayed, press the either side of the SEEK/AMS button. → "SEARCH" will blink in the display.**
The unit will search for station broadcasting this programme type.

PTY SEARCH

4 **When a programme of the desired type is received, the programme type will again appear in the display for five seconds.**

PTY SPORT

If the desired programme type cannot be found, "NO Data" ("NO DATA" for the XR-C620RDS) will be displayed for five seconds, and the unit returns to the previous station (programme).

PTY NO Data

Using RDS Data for Setting the Clock Automatically

By receiving CT (Clock Time) data, the clock of this unit can be set automatically.

During FM reception, press the REPEAT 2 button while pressing the SEL button. → "CT" will be displayed, and the clock will be set.

CT 1:00

To cancel the CT function, press these buttons again.

Notes
- *The CT function may not work even though an RDS station is being received.*
- *The time set by the CT function may not be exact.*

Other Functions

Adjusting the Sound Characteristics

1 **Select the item you want to adjust by pressing the SEL button repeatedly.**

XR-C720RDS:
VOL (volume) → SUB (Sub output level) → BAS* (bass) → TRE* (treble) → BAL (balance) → FAD* (fader) → VOL (volume)
* *The level of the SUB output cannot be adjusted.*

XR-C620RDS:
VOL (volume) → BAS (bass) → TRE (treble) → BAL (balance) → FAD (fader) → VOL (volume)

2 **Adjust the selected item by pressing either the + or – button.**

Adjust within three seconds after selecting. (After three seconds the button will again serve as volume control button.)

Notes
- *When another digital pre-amplifier than XDP-U50D or a graphic equalizer is connected and the LINE-OUT/IN SELECT switch is set to ❷, "SUB"and "FAD" ("FAD" for the XR-C620RDS) will not be displayed even with the SEL button pressed.*
- *When the optional XDP-U50D is connected, the fader settings can be set separately for the DSP on mode and DSP off mode.*
- *When you use a stereo graphic equalizer (not supplied), set the fader control to the center position and adjust the level with the equalizer.*

Muting the Sound Quickly

— Mute Function

Press the MUTE button. → The "MUTE" indication flashes.
The sound is muted at once. To restore the previous volume level, press again.

This function will be also cancelled when:
— *the* + *or* OFF *button is pressed.*
— *ejecting a cassette by pressing the ≜ button during tape playback.*

Changing the Illumination Color

Press the [1] button while pressing the [SEL] button.
You can choose the color between amber and green.

Storing the Sound Characteristics of each Source

— Source Tone Memory Function

Press the [4] button while pressing the [SEL] button. → "STM" will appear on the display.

This function memorizes the adjusted sound characteristics (the bass, treble, and different between volume and sub output level*) of each programme source. With this function, you can listen to the same source always in the same sound characteristics even after changing the programme source or tuning the unit off and on again.
* *XR-C720RDS only*

To cancel the STM function, press these buttons again.

Note
When the optional XDP-U50D is connected, the STM function will not work.

Muting the Beep Tone

Press the [6] button while pressing the [SEL] button.
To obtain the beep tone again, press these buttons once more.

Enjoying Bass and Treble even at Low Volume

— Loudness Function

Press the [7] button while pressing the [SEL] button. → "LOUD" will appear on the display.
Bass and treble will be reinforced. To cancel, press these buttons again.

Note
When the optional XDP-U50D is connected, the loudness function will not work.

Changing the Line Output Level

(when the optional XDP-U50D and a graphic equalizer are connected)

Press the [8] button while pressing the [SEL] button.

To cancel the mode, press these buttons again.

Changing the Brightness of the Display Window

(for the XR-C720RDS)

Press the [9] button, while pressing the [SEL] button.

The display window Brightness will be dimmed.

To change to the original Brightness, press these buttons again.

DSP Function

With the optional XDP-U50D connected

If you connect the optional XDP-U50D, you can add some effects to the soundfield of the currently selected programme source.

Overview of the Digital Signal Processor (DSP) Function

The DSP can digitalize and process the audio signal with high speed thus enabling you to adjust the acoustic characteristics of the source sound without losing the sound quality.
With the DSP unit you can control the audio output and adjust the acoustic characteristics according to your preference.

Notes
- *When the optional XDP-U50D and a graphic equalizer are connected, the reproduced sound may become distorted if the audio output signal of the graphic equalizer is boosted too much. In this case, press* ***preset number button 8*** *while pressing the* ***SEL button****. This will reduce the volume, but the distorted sound can be suppressed. To cancel the mode, press these buttons once again. (In case the optional XDP-U50D is connected by the optical cable, the volume will not get reduced even if you press preset number button 8 and the SEL button.)*
- *To improve the efficiency of the listening position setting, the volume of the output sound from the rear speakers is lowered automatically.*
- *When the optional XDP-U50D is connected, the loudness function and STM function will not work.*

The DSP edit mode

The DSP function includes following select/adjust modes:
- Surround (SUR) menu select/effect level control mode (see page 25)
- Listening position (LP) adjust mode (see page 26)
- Subwoofer (SUB) cut-off frequency/volume control mode (see page 27)
- Bass (BAS) adjust mode (see page 28)
- Treble (TRE) adjust mode (see page 28)
- Fader (FAD) adjust mode (see page 29)

Display window	Selected mode	Adjustment of
SUR	Surround menu	Effect Level
LP1	Listening position	Left, right, front and rear listening position
SUB	Cut-off frequency	Subwoofer volume
BAS	Bass turn-over frequency	Bass volume
TRE	Treble turn-over frequency	Treble volume

In addition, there are also following DSP-related functions:

- DSP custom file function (see page 29)
- Last sound memory function (see page 29)

Selecting the Surround Mode

This unit features ten preset surround modes. You can select your desired surround mode to suit the source audio. These modes can simulate different soundfields so that you can enjoy the sensation of being close to the music source or being at a live concert etc.

Surround Menu

HALL	Concert hall
JAZZ	Jazz club
DISCO	Disco with thick walls
THEATER	Movie theater/cinema
PARK	Big open space
LIVE	Live concert
OPERA	Opera house
CHURCH	Church/chapel with a lot of reverberation
STADIUM	Open-air concert in a stadium
CELLAR	Cellar with a lot of reverberation
DEFEAT	Normal mode without any DSP effects*

* *The surround mode will be canceled. However, other preset levels of the DSP function menu can be adjusted.*

1 **Select a programme source (tape, radio, CD or MD) by pressing the TAPE, TUNER or MD/CD button.**

2 **Press the DSP button for more than one second. → "DSP" appears on the display.**
Enter the surround menu select mode.

SUR -DEFEAT-

3 **Press either the + or − button to select the desired surround menu.**

+ **HALL → JAZZ → DISCO → ...... → DEFEAT → HALL**

− **CELLAR → STADIUM → CHURCH → ...... → DEFEAT → CELLAR**

Note
If the "DEFEAT" mode is selected, the sound will be restored to the original state without any effects. (The "DSP" indication will disappear.)

4 **Press the DSP button for more than one second.**
You can continue to listen with the selected surround menu.

To cancel, press the DSP button momentarily. → "DSP" disappears from the display.

Adjusting the Effect Level

Balance and level of the reflections and of the reverberation of the selected surround mode can be adjusted.

1 **Select the surround mode by performing steps 1 to 3 noted above.**

2 **Press the SEL button momentarily.**
Enter the effect level adjust mode.

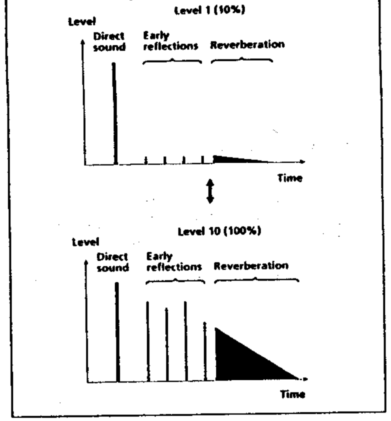
SUR EFFECT 10%

3 **Press either the + or − button to select the desired level.**

SUR EFFECT 80%

You can adjust from 0 to 100%. The higher the percentage, the more resembles the sound a live performance.

Effect Level Adjustment Guide



4 Ⓐ **To continue to adjust the effect level of another surround menu,**
press the SEL button momentarily.

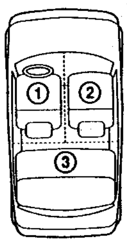
Ⓑ **To cancel the effect level adjust mode,**
press the DSP button for mode than one second.

To stop the setting procedure,
Press the DSP button for more than one second.

To change the effect level to the original (factory-set) setting,
Press the SEL button for more than two seconds.

Selecting the Listening Position

The time it takes for the sound from the speakers to the listener can be selected. Even in an imperfect listening environment, such as inside a car, it is possible to simulate a natural soundfield so that a listener can feel as if he is in the centre of the soundfield wherever he sits in the car.



Display window	Center of soundfield
LP1 **ALL**	Normal setting (① + ② + ③)
LP2 **FRONT**	Front part (① + ②)
LP3 **FRONT R**	Right front (②)
LP4 **FRONT L**	Left front (①)
LP5 **REAR**	Rear part (③)

1 **Select a programme source (tape, radio, CD or MD) by pressing the TAPE, TUNER or MD/CD button.**

2 **Press the DSP button for more than one second. → "DSP" appears on the display.**

3 **Press the DSP button momentarily several times until you get the "LP1" indication.**
Enter the listening position adjust mode.

LP1 ALL

4 **Press either the + or − button to select the desired level.**

By pressing either the + or − button repeatedly, the listening position indication in the display window will change as follows:

+ **ALL (LP1) → FRONT (LP2) → ..... → REAR (LP5) → ALL (LP1)**

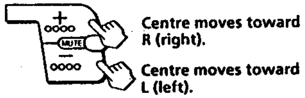
− **ALL (LP1) → REAR (LP5) → ...... → FRONT (LP2) → ALL (LP1)**

5 **To cancel the listening position adjust mode,**
press the DSP button for more than one second.

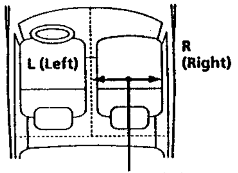
Setting the listening position more specifically

1 **After selecting the listening position by performing steps 1 to 3, press the SEL button.**
Enter the left/right balance adjust mode.

2 **Press either the + or – button to set the centre of the soundfield.**

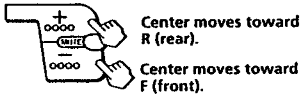


For example, adjustment of the left/right balance of "LP3"

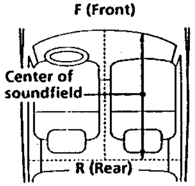


3 **Press the SEL button.**
Enter the front/rear balance adjust mode.

4 **Press either the + or – button to set the centre of the soundfield.**



For example, adjustment of the front/rear balance of "LP3"

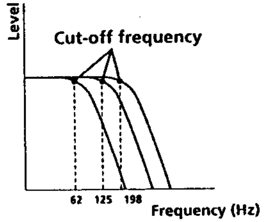


5 Ⓐ **To continue to adjust another the listening position,**
press the SEL button momentarily.

Ⓑ **To cancel the balance adjust mode,**
press the DSP button for more than one second.

Adjusting the Cut-off Frequency and Volume of the Subwoofer(s)

To match the characteristics of the connected subwoofer(s), you can cut the unwanted high and middle frequency audio signal entering the subwoofer(s). The frequency at which the audio signal is cut off is called the cut-off frequency. By setting the cut-off frequency, the subwoofer(s) will output only low frequency signals so that a clearer sound image can be created.



1 **Select a programme source (tape, radio, CD or MD) by pressing the TAPE, TUNER or MD/CD button.**

2 **Press the DSP button for more than one second. → "DSP" appears on the display.**

3 **Press the DSP button momentarily several times until you get the "SUB" indication.**
Enter the cut-off frequency adjust mode.

SUB C. OFF125Hz

4 **Press either the + or – button to select the desired cut-off frequency.**

By pressing either the + or – button repeatedly, the listening position indication in the display window will change as follows:

+ : **62 Hz → 78 Hz → 99 Hz → 125 Hz* → 157 Hz → 198 Hz**

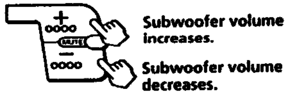
– : **198 Hz → 157 Hz → 125 Hz* → 99 Hz → 78 Hz → 62 Hz**

*** Factory-set frequency**

5 **Press the SEL button momentarily.**
Enter the volume control mode.

continue to next page →

6 **Press either the + or – button to adjust the volume.**



Note
At the lowest volume setting the subwoofer sound will be completely cut out (submute).

7 Ⓐ **To continue to select another the cut-off frequency,**
press the SEL button momentarily.

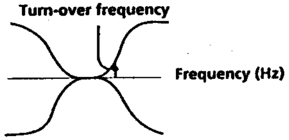
Ⓑ **To cancel the cut-off frequency adjust mode,**
press the DSP button for more than one second.

Stopping the setting procedure
Press the DSP button for more than one second.

Changing the cut-off frequency to the original (factory-set) setting
Press the SEL button for more than two seconds.

Adjusting the Bass and Treble

When the bass or treble frequency is changed, the original frequency is called the turn-over frequency. By selecting the bass or treble turn-over frequencies, you can control the volume thus matching the acoustic characteristics inside your car.



1 **Select a programme source (tape, radio, CD or MD) by pressing the TAPE, TUNER or MD/CD button.**

2 **Press the DSP button for more than one second. → "DSP" appears on the display.**

3 **Press the DSP button momentarily several times to get the "BAS" or "TRE" indication.**
Enter the bass or treble adjust mode.

BAS 314 Hz

Bass adjust mode

TRE 3. 1 KHz

Treble adjust mode

4 **Press either the + or – button to select the turn-over frequency.**

By pressing either the + or – button repeatedly, the turn-over frequencies in the bass adjust mode will change as follows:

+ : **198 Hz → 250 Hz → 314 Hz* → 396 Hz**

– : **396 Hz → 314 Hz* → 250 Hz → 198 Hz**

*** Factory-set frequency**

By pressing either the + or – button repeatedly, the turn-over frequencies in the treble adjust mode will change as follows:

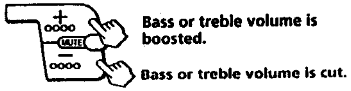
+ : **2.0 kHz → 3.1 kHz* → 4.0 kHz → 5.0 kHz**

– : **5.0 kHz → 4.0 kHz → 3.1 kHz* → 2.0 kHz**

*** Factory-set frequency**

5 **Press the SEL button momentarily.**
Enter the volume control mode.

6 **Press either the + or – button to adjust the volume.**



MUTE
Bass or treble volume is boosted.
Bass or treble volume is cut.

7 Ⓐ **To continue to select another the turn-over frequency,**
press the SEL button momentarily.

Ⓑ **To cancel the bass or treble adjust mode,**
press the DSP button for more than one second.

To stop the setting procedure
Press the DSP button for more than one second.

To change the bass or treble to the original (factory-set) setting
Press the SEL button for more than two seconds.

Fader (FAD) Adjustment

The fader can be adjusted separately for the DSP on mode and DSP off mode. Normally, with the DSP mode on, the volume of the output sound from the rear speakers is lowered automatically to improve the efficiency of the listening position setting. If you want to raise the rear speaker volume, adjust the fader.

For this operation, refer to page 13.

DSP Custom File Function

(With Optional CD changer(s) connected)

Registering Surround Modes onto Discs

Once you have registered the desired surround modes onto the discs, you can enjoy the same surround modes every time you play these discs. (With one CD changer, you can register surround modes onto a maximum of 110 discs. See page 22 for more details.)

Note
Before registering the DSP custom file, make sure that you have titled the discs (page 22).

1 **Play the disc whose surround mode you wish to register.**

2 **Press the PTY LIST button for more than two seconds.**
Enter the name edit mode.

Note
If the disc has no title, "- - - - - - - - " will appear in the display window. Refer to "Putting Your Personalized Titles onto the CDs" on page 22.

3 **Press the PTY LIST button momentarily twice.**
Enter the DSP file registering mode.

CD1 -DEFEAT-

4 **Press either the + or – button to select the surround menu.**

+ HALL → JAZZ → DISCO → ...... → DEFEAT → HALL

– CELLAR → STADIUM → CHURCH → ...... → DEFEAT → CELLAR

5 **Press the PTY LIST button for more than two seconds.**
Enter the normal CD playback mode.

Playing in the DSP Custom File Mode

Press the DSP button while pressing the SEL button during CD playback.
→ "DSP" and "FILE" appears on the display.

CD1 DISC 1. TRACK 1 2. 15

To cancel, press these buttons again.

Notes
- *When you press the DSP button during CD playback in the DSP custom file mode, the surround mode will be cancelled. However, if you change the disc, the new disc will be played in the surround mode registered in the DSP custom file.*
- *If no surround mode is registered on a disc, the "DSP" indication will not appear.*

Changing the registered surround mode

Play the disc whose surround mode you wish to change, and repeat from step 2 to step 5 in this page.

Erasing the registered surround mode

Select the DEFEAT mode in step 4 this page.

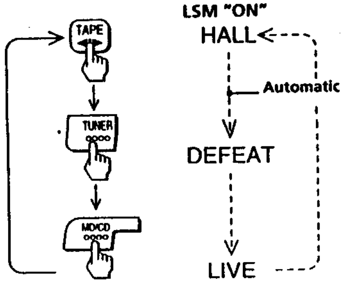
Listening to each Programme Source in its Registered Surround Mode

— LSM (Last Sound Memory) Function

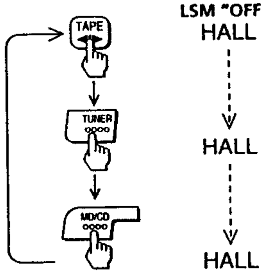
This function memorizes the last-selected surround mode of each programme source. With this function, you can listen to the same source always in the same surround mode even after changing the programme source or turning the unit off and on again.

For example, if you listen in following order to a MD in the "HALL" mode, to the radio in the "DEFEAT" mode, to a CD in the "LIVE" mode and change then to MD playback, the surround mode will automatically change to "HALL". If you change then to radio, the surround mode will change to "DEFEAT".

LSM "ON"



LSM "OFF"



Note
Even with the LSM function off, it is possible to change the surround mode manually.

Playback with the LSM Function

Press the 10 button while pressing the SEL button. → "LSM" appears on the display.

LSM ON

To cancel, press these buttons again.

Note
When you play a CD in the DSP custom file mode, the various surround modes registered on the discs will change automatically even when the LSM function is on.

Maintenance

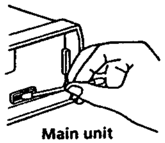
Fuse Replacement

When replacing the fuse, be sure to use one with the correct amperage which is stated on the fuse case. Never use a fuse whose amperage rating exceeds the one supplied to the unit as this could cause a malfunction of the unit.

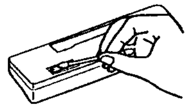
Warning
Use a fuse with the specified amperage.
Use of a fuse with higher amperage may cause serious damage.

Cleaning the Connectors

The unit may not function properly if the connectors between the unit and the front panel are not clean. In order to prevent this, open the front panel by pressing the RELEASE button, then detach it and clean with a cotton swab which was dipped in alcohol. Do not apply too much force. Otherwise, the connector may get damaged.



Main unit



Back of the front panel

Error displays (with the optional CD/MD changer(s) connected)

The following indications will flash for about five seconds and an alarm sound will be heard.

Display	Cause	Solution
NO Mag	The disc magazine is not inserted in the CD/MD changer.	Insert the disc magazine with discs into the CD/MD changer.
NO Disc	No disc is inserted in the disc magazine.	Take out the magazine and insert the discs.
Error	The disc is dirty.	Clean the disc*.
	The disc is inserted upside down.	Insert the disc correctly.
Push Reset	The CD/MD changer cannot be operated because of some problem.	Press the reset button of the unit.
Not Ready	The lid of the MD changer is open or MDs are not inserted properly.	Close the lid or inserted the MDs properly.
Blank	No tracks have been recorded on the MD.	Play a MD with recorded tracks on it.
High Temp	The ambient temperature is more than 50°C.	Wait until the temperature goes down below 50°C.

* *In case of a MD, insert another MD.*

If the above-mentioned solutions do not help to improve the situation, consult your nearest Sony dealer.

Connection

Caution

- This unit is designed for negative ground 12 V DC operation only.
- Before making connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Connect the **yellow** and **red** power input leads only after all other leads have been connected.
- Be sure to connect the red power input lead to the positive 12 V power terminal which is energized when the ignition key is in the accessory position.
- **Run all ground wires to a common ground point.**

If Your Car has No Accessory Position on the Ignition Key Switch — POWER SELECT Switch

The illumination on the front panel is factory-set to be turned on even when the unit is not being played. However, this setting may cause some car battery wear **if your car has no accessory position on the ignition key switch.** To avoid this battery wear, **set the POWER SELECT switch located on the bottom of the unit to the Ⓑ position, then press the reset button.** The illumination is reset to stay off while the unit is not being played.

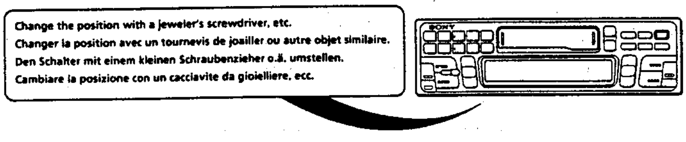
Note
The caution alarm for the front panel is not activated when the POWER SELECT switch is set to the Ⓑ position.

When Using the SUB OUT/LINE OUT Terminal
— LINE-OUT/IN SELECT Switch

With the LINE-OUT/IN SELECT switch on the bottom of the unit, you can change the SUB VOLUME OUT/LINE OUT terminal to work as subwoofer output* terminal or as LINE OUT terminal.

- When you want to use the SUB VOLUME OUT/LINE OUT terminal as subwoofer output terminal and connect an active subwoofer to it, set the switch to ①.
- When you want to use the SUB VOLUME OUT/LINE OUT terminal as LINE OUT terminal and connect a digital signal processor or graphic equalizer to it, set the switch to ❷. In this case, the FRONT LINE OUT terminal and REAR LINE OUT terminal will serve as FRONT LINE IN terminal and REAR LINE IN terminal, respectively.

** Bass, treble, and fader cannot be adjusted.*



Change the position with a jeweler's screwdriver, etc.
Changer la position avec un tournevis de joailler ou autre objet similaire.
Den Schalter mit einem kleinen Schraubenzieher o.ä. umstellen.
Cambiare la posizione con un cacciavite da gioielliere, ecc.

When you change the position of the switch, be sure to press one of the reset buttons after the connections are completed.

Reset Button

When the installation and connections are over, be sure to press the reset button with a ball-point pen etc. The reset button is located on the left of the connector on the unit side when the front panel is detached.

Connexions

Précautions

- Cet appareil est conçu pour fonctionner sur courant continu de 12 V avec masse négative.
- Avant d'effectuer les raccordements, débranchez la borne de terre de la batterie du véhicule pour éviter tout court-circuit.
- Raccordez les fils **jaune** et **rouge** d'alimentation uniquement après avoir réalisé toutes les autres connexions.
- Raccordez le fil d'alimentation rouge à la borne positive de 12 V qui est alimentée quand la clé de contact est sur la position accessoire.
- **Rassemblez tous les fils de terre en un point de masse commun.**

Si l'appareil est utilisé dans une voiture dont la clé de contact n'a pas de position accessoires
— Interrupteur POWER SELECT

L'éclairage du panneau avant est réglé en usine de manière à s'allumer même quand l'appareil ne fonctionne pas. Cependant, ce réglage risque d'épuiser la batterie **si l'appareil est utilisé dans une voiture dont la clé de contact ne possède pas de position accessoires.** Pour éviter d'épuiser la batterie, régler l'interrupteur **POWER sur le socle de l'appareil sur la position Ⓑ, puis appuyer sur la touche de réinitialisation.** L'éclairage est réglé pour rester éteint quand l'appareil n'est pas utilisé.

Remarque
Quand l'interrupteur POWER SELECT est réglé sur la position Ⓑ, l'avertisseur du panneau avant ne fonctionne pas.

Si vous utilisez la borne SUB OUT/LINE OUT
— Commutateur LINE OUT/IN SELECT

Le commutateur LINE-OUT / IN SELECT situé sous l'appareil vous permet de changer la borne SUB VOLUME OUT / LINE OUT pour qu'elle serve de borne de sortie* subwoofer ou de borne LINE OUT.

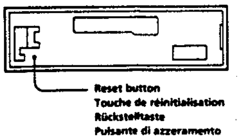
- Si vous souhaitez utiliser la borne SUB VOLUME OUT/LINE OUT comme borne de sortie du subwoofer et y raccorder un subwoofer actif, réglez le commutateur sur ①.
- Si vous souhaitez utiliser la borne SUB VOLUME OUT / LINE OUT comme borne de sortie LINE OUT et raccorder un processeur de signal numérique ou un égaliseur graphique, réglez le commutateur sur ❷. Dans ce cas, les bornes FRONT LINE OUT et REAR LINE OUT servent respectivement de bornes FRONT LINE IN et REAR LINE IN.

** Les basses, les aiguës et la balance avant/arrière ne peuvent être réglées.*

Si vous changez la position de l'interrupteur, n'oubliez pas d'appuyer sur une des touches de réinitialisation après avoir terminé tous les raccordements.

Touche de réinitialisation

Quand vous avez terminé l'installation et les raccordements, appuyez sur la touche de réinitialisation avec un stylo-bille ou un objet pointu. La touche de réinitialisation est située à gauche du connecteur sur la partie de l'appareil qui se trouve derrière la façade.



Anschluß

Vorsicht

- Dieses Gerät ist ausschließlich für eine negativ geerdete 12-V-Autobatterie bestimmt.
- Trennen Sie vor dem Anschließen des Geräts die Erdungsklemme der Batterie ab, um einen Kurzschluß zu vermeiden.
- Schließen Sie das **gelbe** und **rote** Stromversorgungskabel erst an, wenn alle anderen Kabel bereits angeschlossen sind.
- Leiten Sie das rote Stromversorgungskabel an einen positiven 12-V-Kontakt des Bordnetzes, der in der Zubehörposition des Zündschlosses unter Strom steht.
- **Leiten Sie alle Erdungskabel an einen gemeinsamen Massepunkt ab.**

Wenn das Zündschloß Ihres Wagens keine Position I bzw. ACC besitzt — POWER SELECT-Schalter

Das Gerät ist werkseitig so voreingestellt, daß das Bedienfeld auch dann beleuchtet ist, wenn das Gerät nicht betrieben wird. Besitzt das Zündschloß Ihres Fahrzeugs **keine Position I bzw. ACC, so ist die Beleuchtung ständig eingeschaltet** und entzieht der Batterie Strom. Stellen Sie in einem solchen Fall **den POWER SELECT-Schalter an der Unterseite des Geräts auf Position Ⓑ, und drücken Sie dann die Rücksetztaste.** Bei ausgeschaltetem Gerät ist das Bedienfeld dann nicht mehr beleuchtet.

Hinweis
Der Warnton für die Frontplatte ertönt nicht, wenn der POWER SELECT-Schalter auf Position Ⓑ gestellt ist.

Der Anschluß SUB OUT/LINE OUT
— Schalter LINE-OUT/IN SELECT

Mit dem Schalter LINE-OUT/IN SELECT an der Geräteunterseite können Sie den Anschluß SUB VOLUME OUT/LINE OUT so schalten, daß Sie ihn als Tiefsttonlautsprecherausgang* oder als Anschluß LINE OUT nutzen können.

- Wenn Sie den Anschluß SUB VOLUME OUT/LINE OUT als Tiefsttonlautsprecherausgang nutzen wollen und einen Aktivtiefsttonlautsprecher anschließen, stellen Sie den Schalter auf ①.
- Wenn Sie den Anschluß SUB VOLUME OUT/LINE OUT als Anschluß LINE OUT nutzen wollen und einen digitalen Signalprozessor oder Graphic Equalizer anschließen, stellen Sie den Schalter auf ❷. In diesem Fall dienen die Anschlüsse FRONT LINE OUT und REAR LINE OUT als Anschluß FRONT LINE IN bzw. REAR LINE IN.

** Bässe, Höhen und Fader können nicht eingestellt werden.*

Nach einer Umstellung des Schalters drücken Sie (bei vollständig angeschlossenem Gerät) die Rückstelltaste.

Rückstelltaste

Nach der Installation und dem Anschluß muß die Rückstelltaste mit einem Kugelschreiber o.ä. gedrückt werden. Die Rückstelltaste befindet sich bei abgenommener Frontplatte links neben dem Anschluß.

Collegamenti

Attenzione

- Questo apparecchio è stato progettato per l'uso solo in funzionamento a 12 V CC con massa negativa.
- Prima di eseguire i collegamenti, scollegare il terminale di massa della batteria dell'auto per evitare cortocircuiti.
- Collegare i cavi di collegamento alimentazione **rosso e giallo** solo dopo aver collegato tutti gli altri cavi.
- Assicurarsi di collegare il cavo rosso di collegamento alimentazione al terminale di alimentazione 12 V positivo che è sotto tensione quando la chiavetta di accensione è in posizione accessoria.
- **Portare tutti i cavi di massa a un punto di massa comune.**

Quando si usa l'apparecchio in un'auto priva di posizione accessoria per la chiavetta di accensione
— Interruttore POWER SELECT

L'illuminazione del pannello anteriore è stata predisposta in fabbrica per l'attivazione anche quando non si usa l'apparecchio. Tuttavia questa regolazione può causare scaricamento della batteria dell'auto **se si usa l'apparecchio in un'auto priva di posizione accessoria per la chiavetta di accensione.** Per evitare ciò, **regolare su Ⓑ l'interruttore POWER SELECT situato alla base dell'apparecchio e quindi premere il tasto di azzeramento.** L'illuminazione rimane così spenta finché l'apparecchio rimane spento.

Nota
La suoneria di avvertimento per il pannello anteriore non si attiva quando l'interruttore POWER SELECT è in posizione Ⓑ.

Utilizzo del terminale SUB OUT/LINE OUT
— Interruttore LINE-OUT/IN SELECT

L'interruttore LINE-OUT/IN, posto alla base dell'apparecchio, consente di utilizzare il cavo terminale SUB VOLUME OUT/LINE OUT come uscita del subwoofer* o come cavo terminale LINE OUT.

- Se si desidera utilizzare il terminale SUB VOLUME OUT/LINE OUT come terminale di uscita del subwoofer e collegarlo ad un subwoofer attivo, posizionare l'interruttore su ①.
- Se si desidera utilizzare il terminale SUB VOLUME OUT/LINE OUT come terminale di uscita LINE OUT e collegarlo ad un processore digitale di segnale o ad un equalizzatore grafico, posizionare l'interruttore su ❷. In questo caso, i terminali FRONT LINE OUT e REAR LINE OUT fungeranno rispettivamente da terminali FRONT LINE IN e REAR LINE IN.

** Non è possibile regolare i bassi, gli acuti e l'attenuatore.*

Quando si cambia la posizione dell'interruttore, assicurarsi di premere uno dei pulsanti di azzeramento dopo aver completato i collegamenti.

Pulsante di azzeramento

Dopo avere terminato l'installazione e i collegamenti, assicurarsi di premere il pulsante di azzeramento con la punta di una penna a sfera ecc. Il pulsante di azzerameno è collocato sulla sinistra del connettore sul lato dell'apparecchio quando il pannello anteriore è staccato.

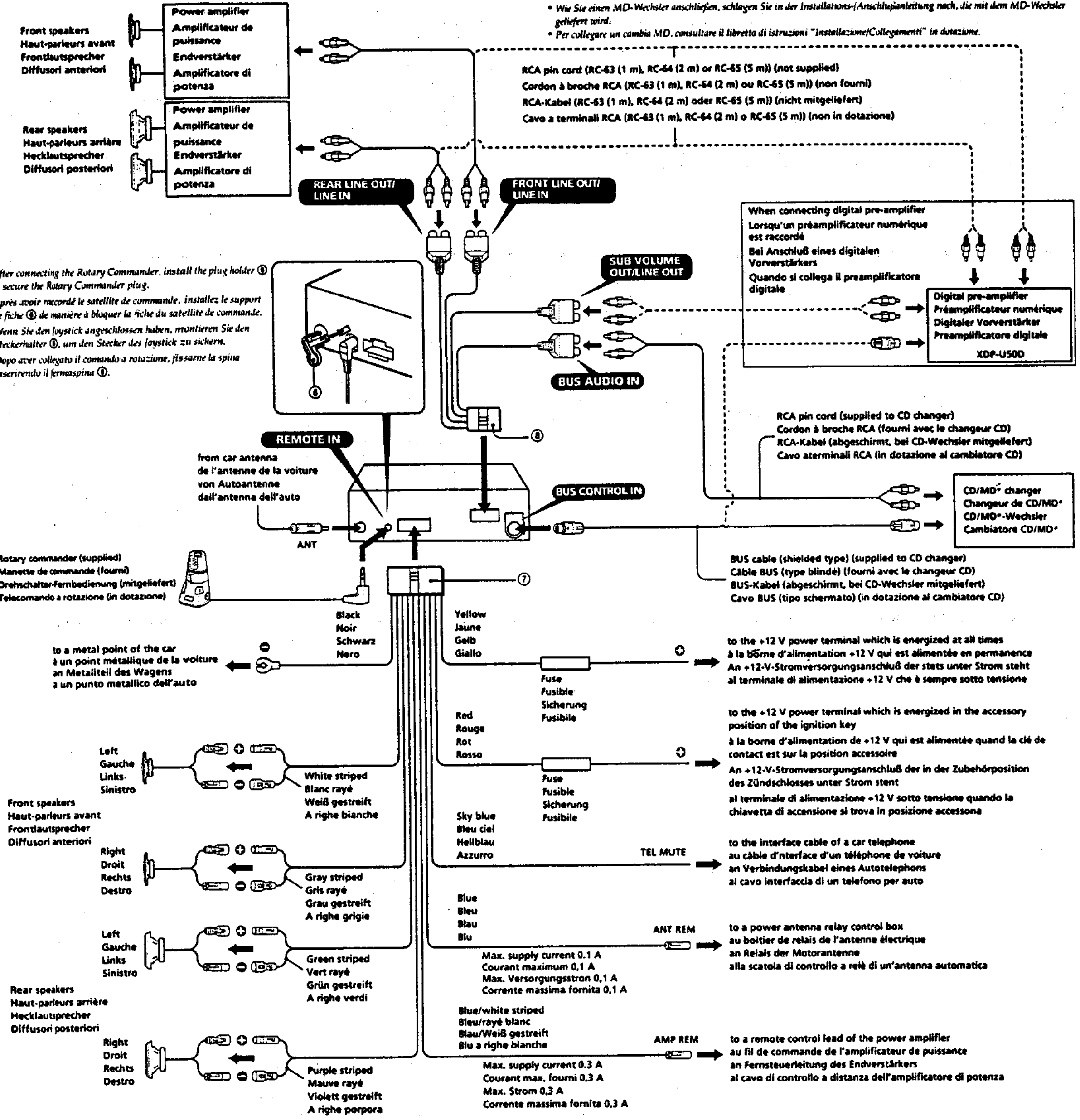
Connection Example

Exemple de raccordement

Anschlußbeispiel

Esempio di collegamento

- *For connecting an MD changer, refer to the "Installation/Connections" manual supplied with the MD changer.*
- *Pour le raccordement d'un changeur de MD, consultez le manuel "Installation/connexions" fourni avec le changeur de MD.*
- *Wie Sie einen MD-Wechsler anschließen, schlagen Sie in der Installations-/Anschlußanleitung nach, die mit dem MD-Wechsler geliefert wird.*
- *Per collegare un cambia MD, consultare il libretto di istruzioni "Installazione/Collegamenti" in dotazione.*


Front speakers
Haut-parleurs avant
Frontlautsprecher
Diffusori anteriori
Power amplifier
Amplificateur de puissance
Endverstärker
Amplificatore di potenza
Rear speakers
Haut-parleurs arrière
Hecklautsprecher
Diffusori posteriori
Power amplifier
Amplificateur de puissance
Endverstärker
Amplificatore di potenza
RCA pin cord (RC-63 (1 m), RC-64 (2 m) or RC-65 (5 m)) (not supplied)
Cordon à broche RCA (RC-63 (1 m), RC-64 (2 m) ou RC-65 (5 m)) (non fourni)
RCA-Kabel (RC-63 (1 m), RC-64 (2 m) oder RC-65 (5 m)) (nicht mitgeliefert)
Cavo a terminali RCA (RC-63 (1 m), RC-64 (2 m) o RC-65 (5 m)) (non in dotazione)
REAR LINE OUT/ LINE IN
FRONT LINE OUT/ LINE IN
When connecting digital pre-amplifier
Lorsqu'un préamplificateur numérique est raccordé
Bei Anschluß eines digitalen Vorverstärkers
Quando si collega il preamplificatore digitale
Digital pre-amplifier
Préamplificateur numérique
Digitaler Vorverstärker
Preamplificatore digitale
XDP-U50D
SUB VOLUME OUT/LINE OUT
BUS AUDIO IN
⑧
RCA pin cord (supplied to CD changer)
Cordon à broche RCA (fourni avec le changeur CD)
RCA-Kabel (abgeschirmt, bei CD-Wechsler mitgeliefert)
Cavo aterminali RCA (in dotazione al cambiatore CD)
REMOTE IN
from car antenna
de l'antenne de la voiture
von Autoantenne
dall'antenna dell'auto
ANT
BUS CONTROL IN
CD/MD* changer
Changeur de CD/MD*
CD/MD*-Wechsler
Cambiatore CD/MD*
BUS cable (shielded type) (supplied to CD changer)
Câble BUS (type blindé) (fourni avec le changeur CD)
BUS-Kabel (abgeschirmt, bei CD-Wechsler mitgeliefert)
Cavo BUS (tipo schermato) (in dotazione al cambiatore CD)
Rotary commander (supplied)
Manette de commande (fourni)
Drehschalter-Fernbedienung (mitgeliefert)
Telecomando a rotazione (in dotazione)
⑦
Black
Noir
Schwarz
Nero
to a metal point of the car
à un point métallique de la voiture
an Metallteil des Wagens
a un punto metallico dell'auto
Yellow
Jaune
Gelb
Giallo
Fuse
Fusible
Sicherung
Fusibile
to the +12 V power terminal which is energized at all times
à la borne d'alimentation +12 V qui est alimentée en permanence
An +12-V-Stromversorgungsanschluß der stets unter Strom steht
al terminale di alimentazione +12 V che è sempre sotto tensione
Red
Rouge
Rot
Rosso
Fuse
Fusible
Sicherung
Fusibile
to the +12 V power terminal which is energized in the accessory position of the ignition key
à la borne d'alimentation de +12 V qui est alimentée quand la clé de contact est sur la position accessoire
An +12-V-Stromversorgungsanschluß der in der Zubehörposition des Zündschlosses unter Strom stent
al terminale di alimentazione +12 V sotto tensione quando la chiavetta di accensione si trova in posizione accessona
Sky blue
Bleu ciel
Hellblau
Azzurro
TEL MUTE
to the interface cable of a car telephone
au càble d'nterface d'un téléphone de voiture
an Verbindungskabel eines Autotelephons
al cavo interfaccia di un telefono per auto
Blue
Bleu
Blau
Blu
ANT REM
Max. supply current 0.1 A
Courant maximum 0,1 A
Max. Versorgungsstron 0,1 A
Corrente massima fornita 0,1 A
to a power antenna relay control box
au boitier de relais de l'antenne électrique
an Relais der Motorantenne
alla scatola di controllo a relè di un'antenna automatica
Blue/white striped
Bleu/rayé blanc
Blau/Weiß gestreift
Blu a righe bianche
AMP REM
Max. supply current 0.3 A
Courant max. fourni 0.3 A
Max. Strom 0.3 A
Corrente massima fornita 0.3 A
to a remote control lead of the power amplifier
au fil de commande de l'amplificateur de puissance
an Fernsteuerleitung des Endverstärkers
al cavo di controllo a distanza dell'amplificatore di potenza
Front speakers
Haut-parleurs avant
Frontlautsprecher
Diffusori anteriori
Left
Gauche
Links
Sinistro
White striped
Blanc rayé
Weiß gestreift
A righe bianche
Right
Droit
Rechts
Destro
Gray striped
Gris rayé
Grau gestreift
A righe grigie
Rear speakers
Haut-parleurs arrière
Hecklautsprecher
Diffusori posteriori
Left
Gauche
Links
Sinistro
Green striped
Vert rayé
Grün gestreift
A righe verdi
Right
Droit
Rechts
Destro
Purple striped
Mauve rayé
Violett gestreift
A righe porpora

After connecting the Rotary Commander, install the plug holder ⑧ to secure the Rotary Commander plug.

Après avoir raccordé le satellite de commande, installez le support de fiche ⑧ de manière à bloquer la fiche du satellite de commande.

Wenn Sie den Joystick angeschlossen haben, montieren Sie den Steckerhalter ⑧, um den Stecker des Joystick zu sichern.

Dopo aver collegato il comando a rotazione, fissarne la spina inserirendo il fermaspina ⑧.

Notes on the control leads

- *The power antenna control lead (blue) supplies +12 V DC when you turn on the tuner or when you activate the ATA (Automatic Tuner Activation), AF (Alternative Frequency) or the TA (Traffic Announcement) Function.*
- *A power antenna without relay box cannot be used with this unit.*

Memory hold connection

When the yellow power input lead is connected, power will always be supplied to the memory circuit even when the ignition key is turned off.

Notes on speaker connection

- *Before connecting the speakers, turn the unit off.*
- *Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged.*
- *Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.*
- *Do not attempt to connect the speakers in parallel.*
- *Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the active speakers. Therefore, be sure to connect passive speakers to these terminals.*

Remarques sur les fils de contrôle

- *Le fil de contrôle (bleu) de l'antenne électrique fournit un courant continu de +12 V quand le tuner est allumé ou quand la fonction ATA (Activation automatique du tuner), AF (Fréquences alternatives) ou TA informations routières) est mise en service.*
- *Une antenne électrique sans boitier de relais ne peut pas être utilisée avec cet appareil..*

Connexion pour le maintien de la mémoire

Quand le fil d'entrée d'alimentation jaune est raccordé, le circuit de la mémoire est alimenté en permanence même si la clé de contact est sur la position d'arrêt.

Remarques sur la connexion des haut-parleurs

- *Avant de raccorder les haut-parleurs, nettre l'appareil hors tension.*
- *Utiliser des haut-parleurs ayant une impédance de 4 à 8 ohms et une capacité adéquate sous peine de les endommager.*
- *Ne pas raccorder les bornes du système de haut-parleurs au châssis de la voiture et ne pas connecter les bornes du haut-parleur droit à celles du haut-parleur gauche.*
- *Ne pas tenter de raccorder les haut-parleurs en parallèle.*
- *Ne pas raccorder des haut-parleurs amplifiés (avec amplificateurs intégrés) aux bornes de haut-parleur de l'appareil sous peine de les endommager. Veiller à raccorder des haut-parleurs passifs à ces bornes.*

Hinweise zu den Steuerleitungen

- *Die (blaue) Motorantennen-Steuerleitung liefert eine Gleichspannung von +12 V, wenn der Tuner eingeschaltet, die ATA-Funktion (Automatic Tuner Activation), die AF-Funktion (Alternative Frequency) oder die TA-Funktion (Traffic Announcement) aktiviert ist.*
- *Es kann nur eine Motorantenne mit Relaisbox angeschlossen werden.*

Zur Stromversorgung des Speichers

Sofern die gelbe Stromversorgungsleitung angeschlossen ist, wird der Speicher-Schaltkreis stets (d.h. auch bei ausgeschalteter Zündung) mit Strom versorgt.

Hinweise zum Lautsprecheranschluß

- *Schalten Sie das Gerät aus, bevor Sie die Lautsprecher anschließen.*
- *Verwenden Sie Lautsprecher mit einer Impedanz zwischen 4 und 8 Ohm und ausreichender Belastbarkeit. Ansonsten können die Lautsprecher beschädigt werden.*
- *Verbinden Sie die Lautsprecheranschlüsse nicht mit dem Wagenchassis und verbinden Sie auch nicht die Anschlüsse des rechten mit denen des linken Lautsprechers.*
- *Versuchen Sie nicht, Lautsprecher parallel anzuschließen.*
- *An die Lautsprecheranschlüsse dieses Gerätes dürfen nur Passivlautsprecher angeschlossen werden. Schließen Sie keine Aktivlautsprecher (Lautsprecher mit eingebauten Verstärkern) an, da diese sonst beschädigt werden können.*

Note sui cavi di controllo

- *Il cavo di controllo antenna automatica (blu) fornisce +12 V CC quando si accende il sintonizzatore o quando si attiva la funzione ATA (attivazione automatica sintonizzatore), la funzione AF (frequenza alternativa) o TA (notiziari sul traffico).*
- *Non è possibile usare un'antenna automatica senza scatola a relè con questo apparecchio.*

Collegamento per la conservazione in memoria

Quando è collegato il cavo di ingresso alimentazione giallo, il circuito di memoria è alimentato continuamente anche quando la chiavetta di accensione è regolata sulla posizione di spegnimento.

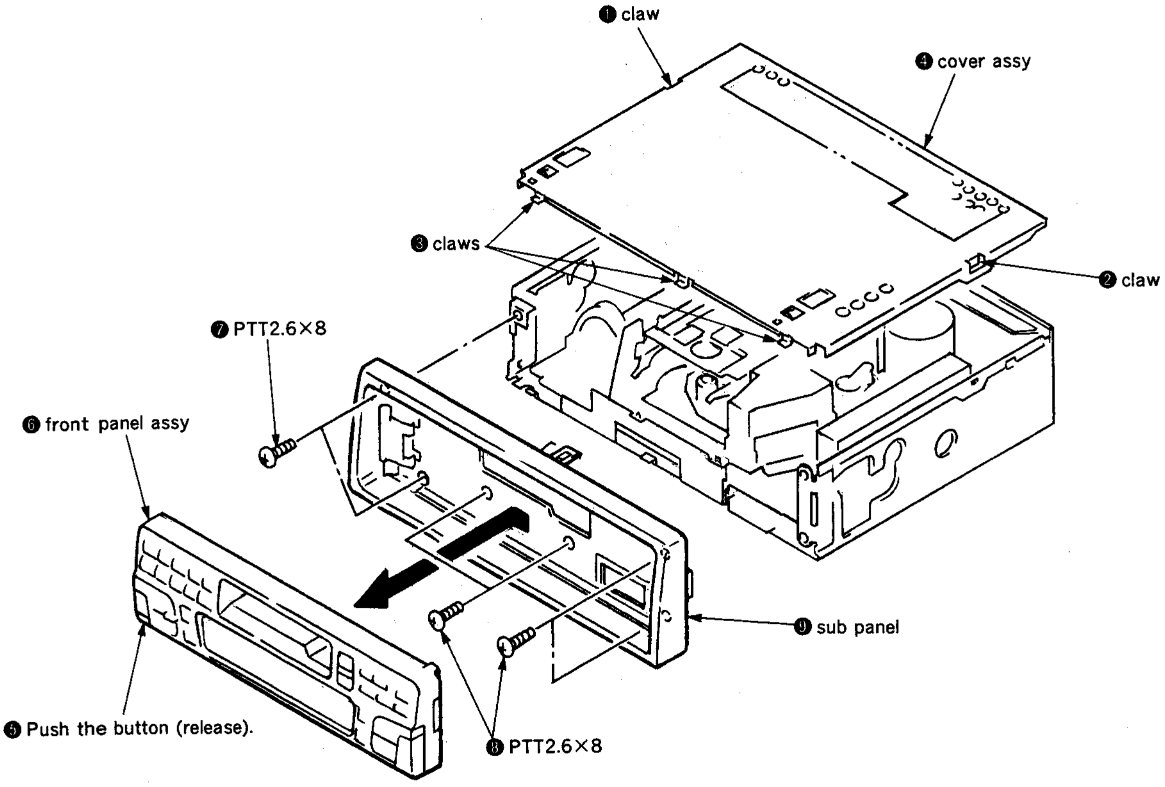
Note sul collegamento dei diffusori

- *Prima di collegare i diffusori spegnere l'apparecchio.*
- *Usare diffusori di impedenza compresa tra 4 e 8 ohm e con capacità di potenza adeguate, altrimenti i diffusori possono essere danneggiati.*
- *Non collegare i terminali del sistema diffusori al telaio dell'auto e non collegare i terminali del diffusore destro a quelli del diffusore sinistro.*
- *Non tentare di collegare i diffusori in parallelo.*
- *Non collegare alcun diffusore attivo (con amplificatore incorporato) ai terminali diffusori dell'apparecchio perché questo può danneggiare i diffusori attivi. Assicurarsi di collegare dei diffusori passivi a questi terminali.*

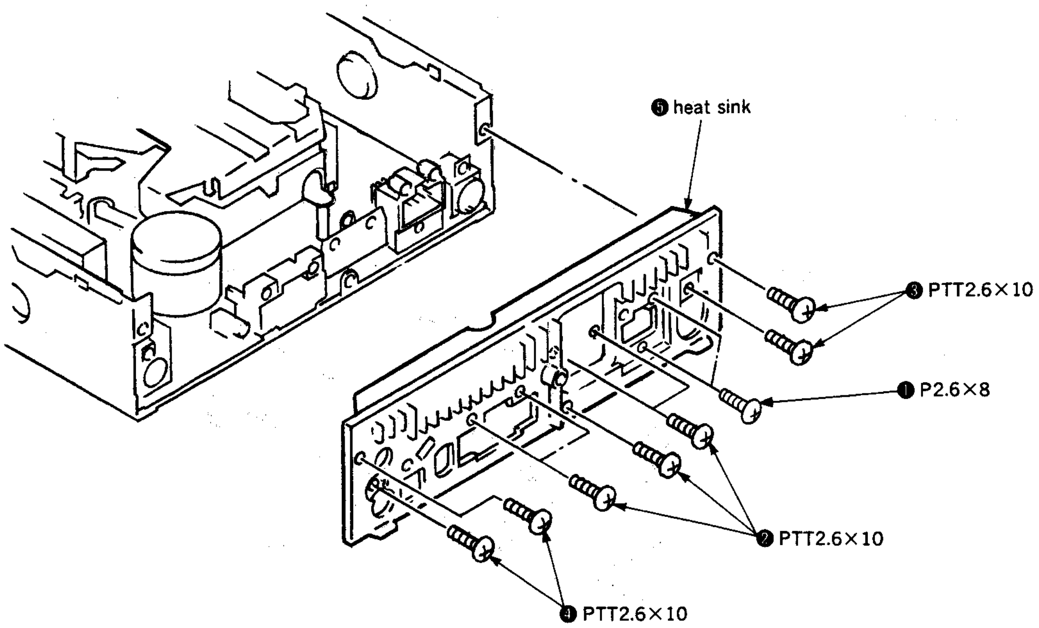
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

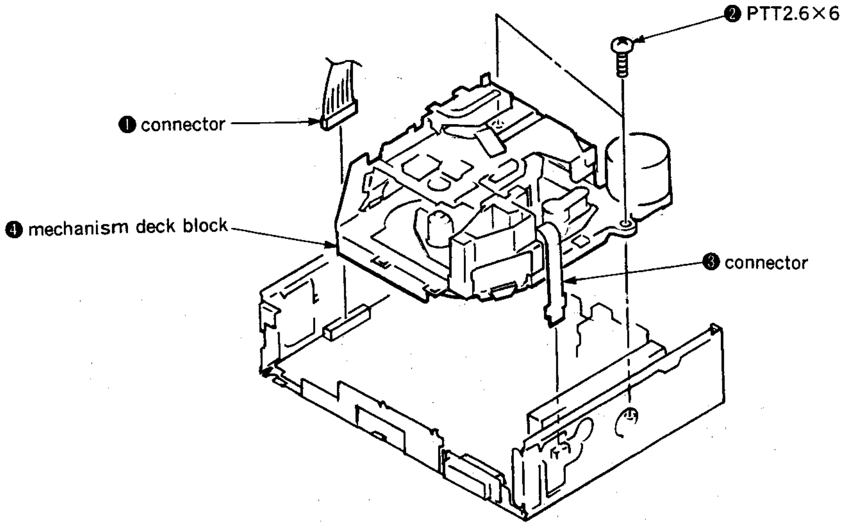
2-1. SUB PANEL


❶ claw
❹ cover assy
❸ claws
❷ claw
❼ PTT2.6×8
❻ front panel assy
❾ sub panel
❺ Push the button (release).
❽ PTT2.6×8

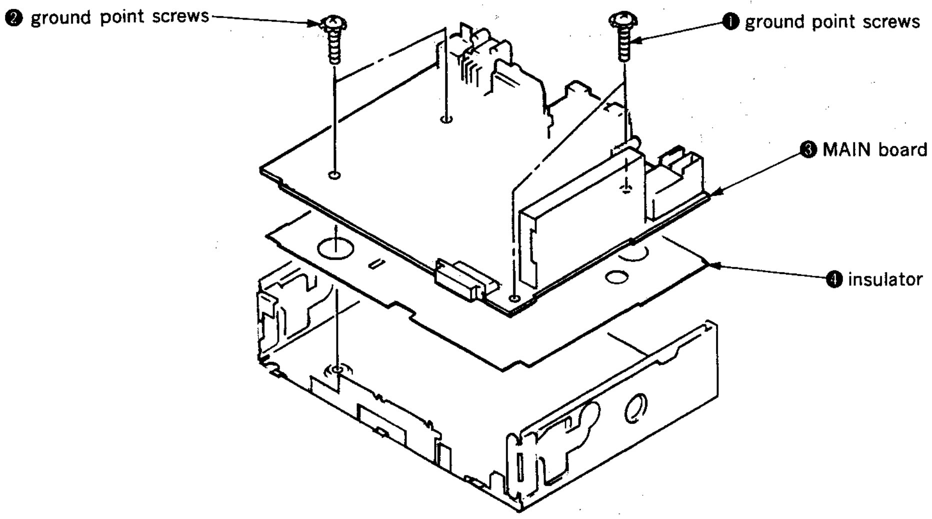
2-2. HEAT SINK


❺ heat sink
❸ PTT2.6×10
❶ P2.6×8
❷ PTT2.6×10
❹ PTT2.6×10

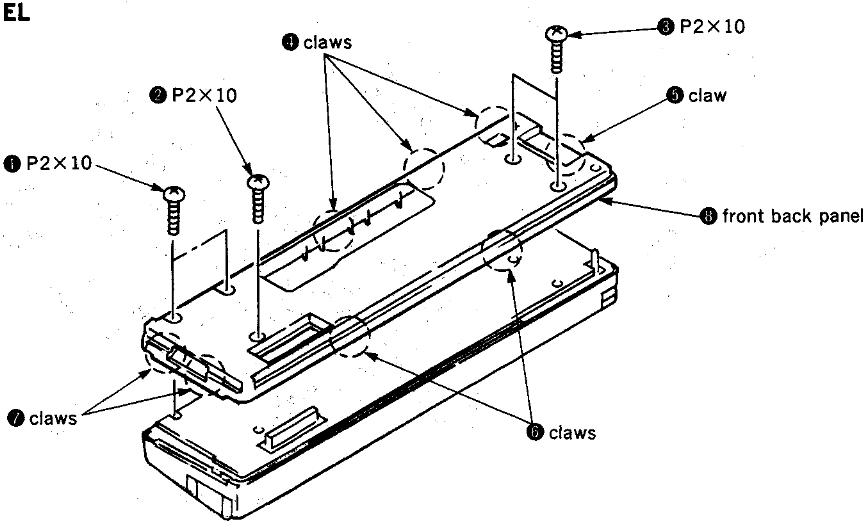
2-3. MECHANISM DECK BLOCK


❷ PTT2.6×6
❶ connector
❹ mechanism deck block
❸ connector

2-4. MAIN BOARD


❷ ground point screws
❶ ground point screws
❸ MAIN board
❹ insulator

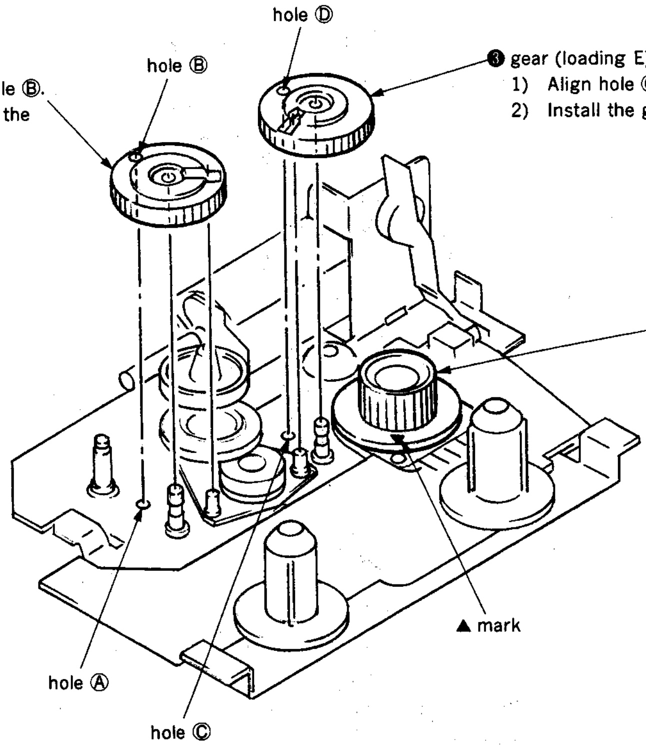
2-5. FRONT BACK PANEL


❹ claws
❸ P2×10
❷ P2×10
❺ claw
❶ P2×10
❽ front back panel
❼ claws
❻ claws

SECTION 3
ASSEMBLY OF MECHANISM DECK

Note : Follow the assembly procedure in the numerical order given.

3-1. INSTALLING THE LOADING GEARS

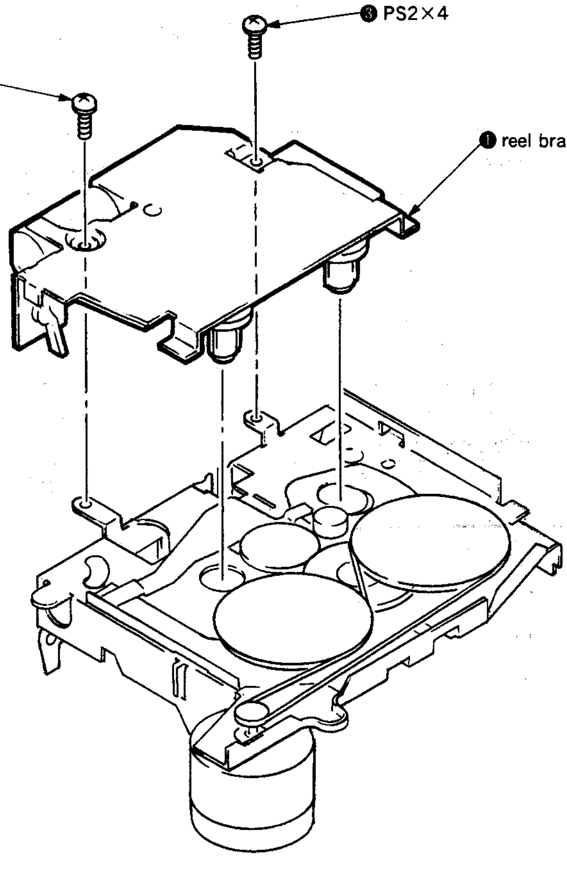

❶ gear (loading D)
1) Align hole Ⓐ with hole Ⓑ.
2) Install the gear onto the shaft firmly.

❷ Set the rotary switch so that ▲ mark is at the location in the figure.

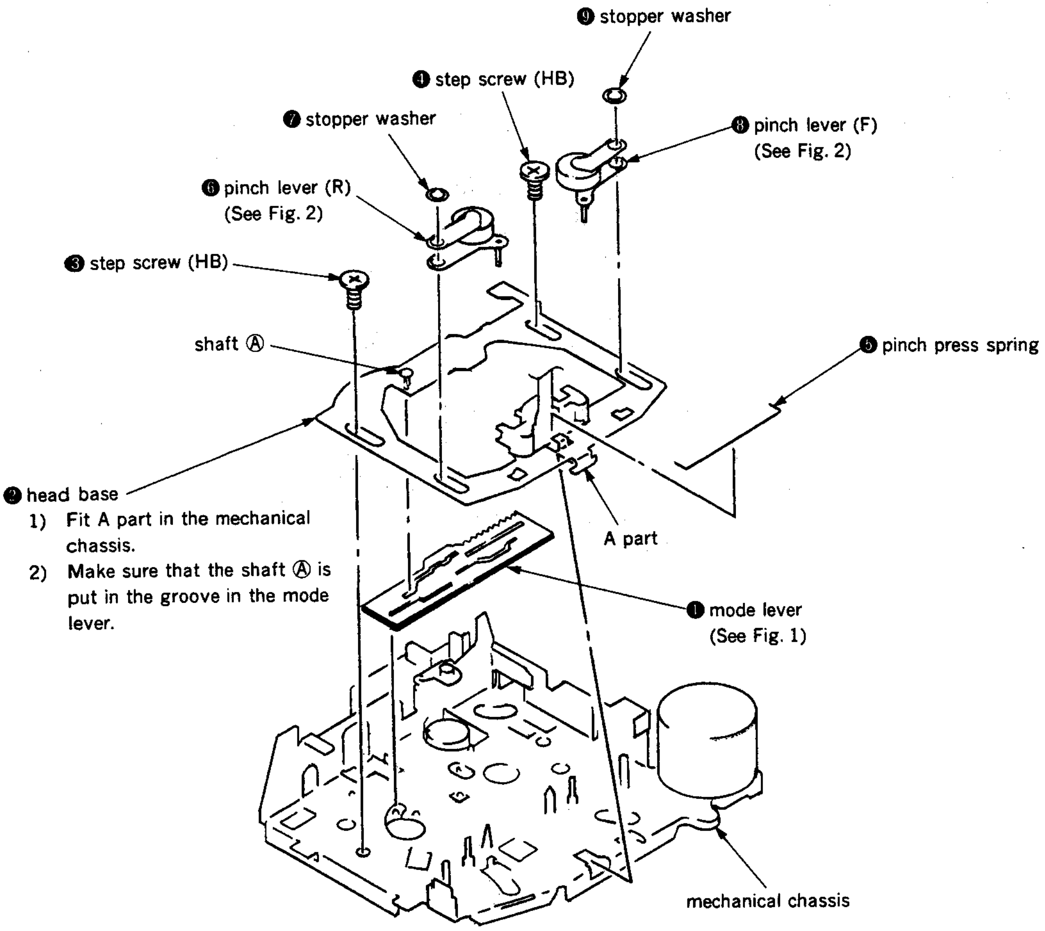
❸ gear (loading E)
1) Align hole Ⓒ with hole Ⓓ.
2) Install the gear onto the shaft firmly.

hole Ⓓ
hole Ⓑ
▲ mark
hole Ⓐ
hole Ⓒ

3-2. INSTALLING THE REEL BRACKET


❸ PS2×4
❷ PS2×4
❶ reel bracket

3-3. INSTALLING THE MODE LEVER AND PINCH LEVERS


❾ stopper washer
❹ step screw (HB)
❼ stopper washer
❽ pinch lever (F)
(See Fig. 2)
❻ pinch lever (R)
(See Fig. 2)
❸ step screw (HB)
shaft Ⓐ
❺ pinch press spring
❷ head base
A part
❶ mode lever
(See Fig. 1)
mechanical chassis

1) Fit A part in the mechanical chassis.
2) Make sure that the shaft Ⓐ is put in the groove in the mode lever.

1) Align • mark on the rotary switch with hole on the mode lever.
2) Make sure that the two shafts and three projections are located as shown below.

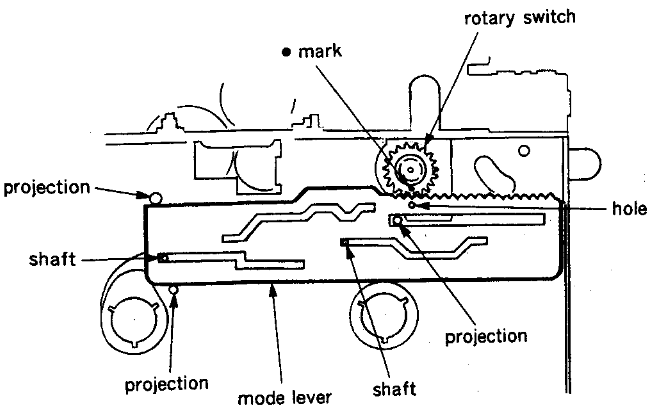

rotary switch
• mark
projection
hole
shaft
projection
projection
mode lever
shaft

Fig. 1

1) Put the shafts of the pinch levers in the pinch press spring on its head side.

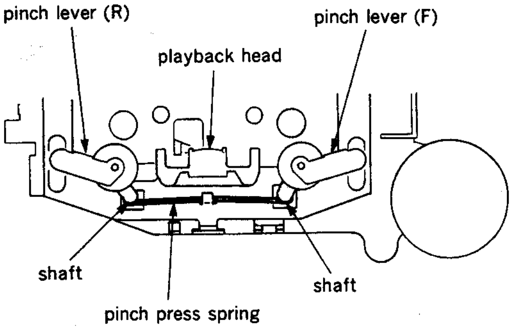
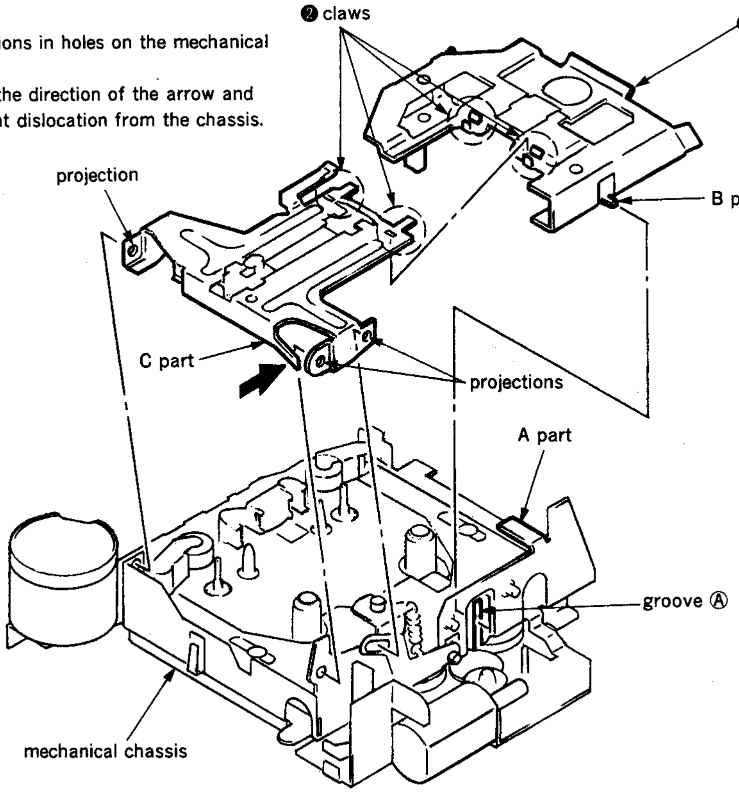

pinch lever (R)
pinch lever (F)
playback head
shaft
shaft
pinch press spring

Fig. 2

3-4. INSTALLING THE CASSETTE HOUSING



❸ housing hanger

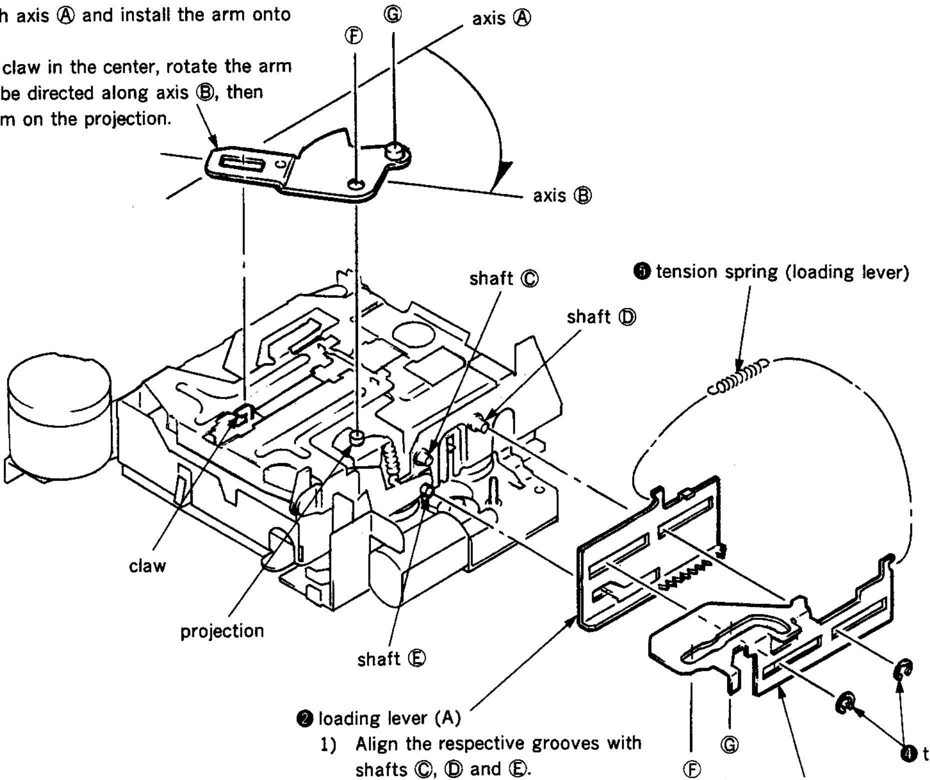
1) Fit three projections in holes on the mechanical chassis.
2) Bend C part in the direction of the arrow and fasten to prevent dislocation from the chassis.

❶ cassette housing

1) Put the cassette housing under A part.
2) Fit B part in groove Ⓐ.

❷ claws
projection
B part
C part
projections
A part
groove Ⓐ
mechanical chassis

3-5. INSTALLING THE LOADING LEVER



❶ suction arm

1) Align with axis Ⓐ and install the arm onto the claw.
2) With the claw in the center, rotate the arm so as to be directed along axis Ⓑ, then fit the arm on the projection.

❷ loading lever (A)

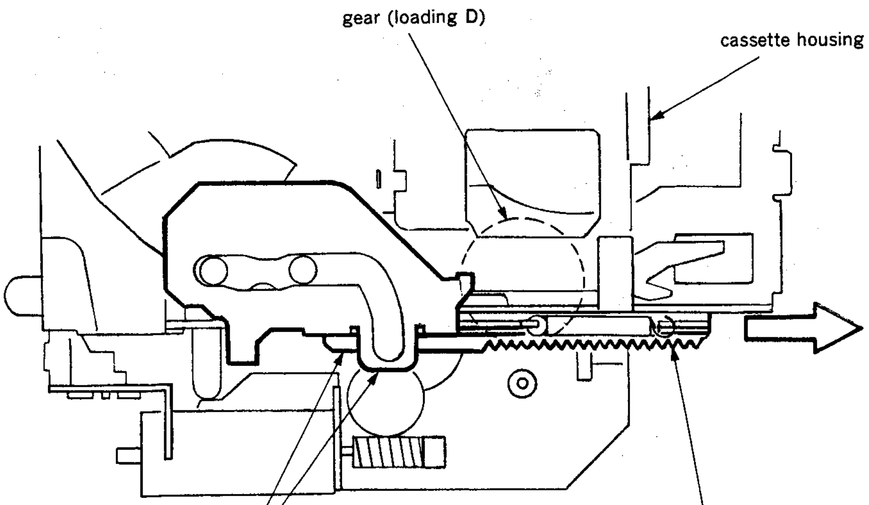
1) Align the respective grooves with shafts Ⓒ, Ⓓ and Ⓔ.

❸ loading lever (B)

1) Align the respective grooves with shafts Ⓒ and Ⓓ.
2) Align the groove with Ⓕ and Ⓖ.

Ⓖ
Ⓕ
axis Ⓐ
axis Ⓑ
shaft Ⓒ
❺ tension spring (loading lever)
shaft Ⓓ
claw
projection
shaft Ⓔ
Ⓖ
Ⓕ
❹ type-E stop ring 2.0

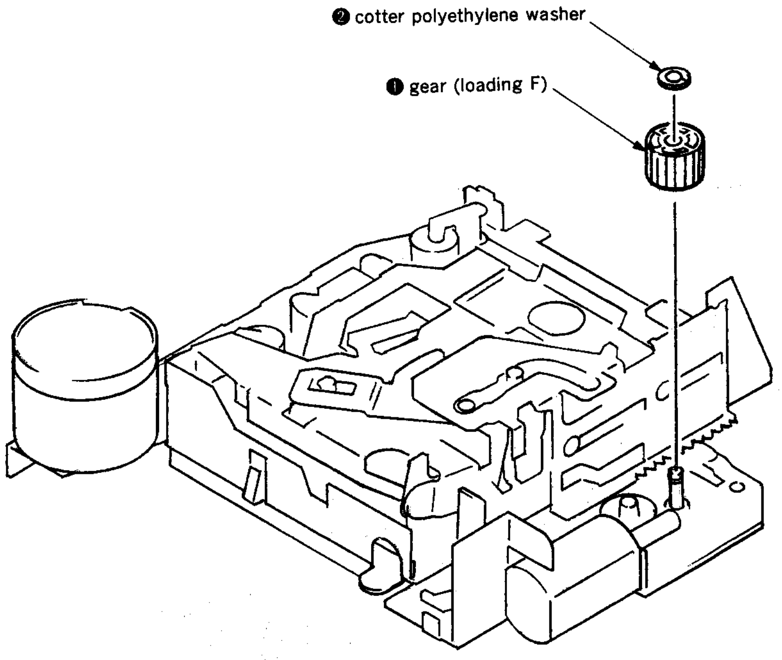
3-6. POSITIONING THE LOADING LEVERS


gear (loading D)
cassette housing

❶ Loading levers (A) and (B): Move loading levers (A) and (B) in the direction of the arrow.
(The cassette housing is put down fully at this time.)

❷ Loading lever (A): Allow the teeth of loading lever (A) to engage with those of the gear (loading D).
(Adjustment method: Retract loading lever (A) by 0.2 to 0.5mm in the opposite direction of the arrow.)

3-7. INSTALLING THE GEAR (LOADING F)


❷ cotter polyethylene washer
❶ gear (loading F)

SECTION 4
MECHANICAL ADJUSTMENTS

PRECAUTION

1. Wipe the following components with an absorbent cotton cloth moistened with alcohol before adjustment:

PB head	Pinch roller
Idler	Rubber belt
Capstan	

2. Demagnetize the PB head using a head demagnetizer.
3. Be careful not to use a magnetized screwdriver.
4. After the adjustment is completed, lock the adjustment parts using screws.
5. Unless otherwise specified, make adjustments at the specified voltage (14.4V).

Torque Measurement

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	30−65g•cm (0.42−0.90 oz•inch)
FWD Back Tension		0.5−4.5g•cm (0.01−0.06 oz•inch)
REV	CQ-102RC	30−65g•cm (0.42−0.90 oz•inch)
REV Back Tension		0.5−4.5g•cm (0.01−0.06 oz•inch)
FF, REW	CQ-201B	60−200g•cm (0.83−2.78 oz•inch)

Tape Tension Measurement

Mode	Tension Meter	Meter Reading
FWD	CQ-403A	more than 90g (more than 3.18 oz)
REV	CQ-403R	

SECTION 5
ELECTRICAL ADJUSTMENTS

TEST MODE

This set have the test mode function. In the test mode, FM Auto Scan/Stop Level and MW Auto Scan/Stop Level adjustments can be performed easier than it in ordinary procedure.

⟨Set the Test Mode⟩

1. Set the "OFF" mode.
2. Push the preset $\boxed{4}$ button.
3. Push the preset $\boxed{5}$ button.
4. Press the preset $\boxed{1}$ button for two seconds.
5. Then the display indicates all lights, the test mode is set.

⟨Release the Test mode⟩

1. Push the "OFF" button.

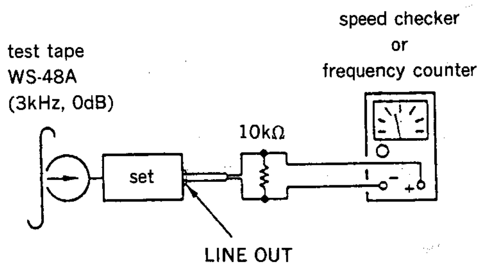
See the adjustment location from on page 25 for the adjustment.

DECK SECTION **0dB=0.775V**

Tape Speed Adjustment

Procedure:

1. Put the set into the FWD PB mode.



Specification: Constant speed

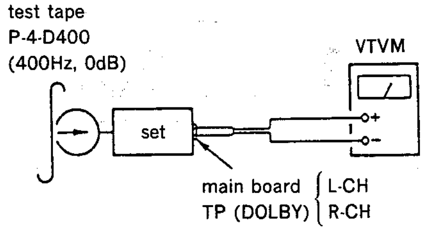
Speed checker	Frequency counter
−1.5 to +2.5%	2,955 to 3,075Hz

Adjustment Location: See page 25.

DOLBY Level Adjustment

Setting:

Preset $\boxed{7}$ (DOLBY) button : OFF
SEL (BAS) button : Center
SEL (TRE) button : Center
SEL (BAL) button : Center
SEL (VOL) button : Maximum



Procedure:

1. Put the set into the FWD PB mode.
2. Adjust RV101 (L-CH) and RV201 (R-CH) so that VTVM reading is −6±0.5 dB (0.37 to 0.41V).

Adjustment Location: See page 25.

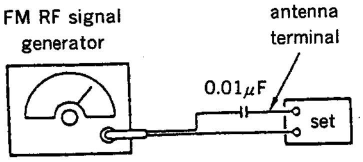
TUNER SECTION

0dB=1μV

Cautions during repair
When the front end is defective, replace it by a new one because its internal block is difficult to repair.

FM Auto Scan/Stop Level Adjustment

Setting:
TUNER button: FM

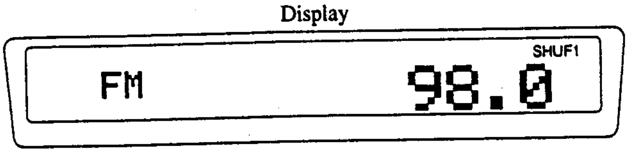

FM RF signal generator
antenna terminal
0.01μF
set

Carrier frequency: 98.0MHz
Output level : 22dB (12.6μV)
Mode : mono
Modulation : 1kHz, 75kHz deviation

Procedure:

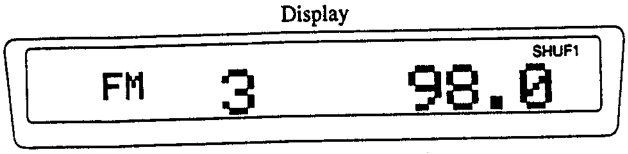
1. Set to the test mode. (See page 21.)
2. Push the TUNER button and set to FM.

Display


SHUF1
FM
98.0

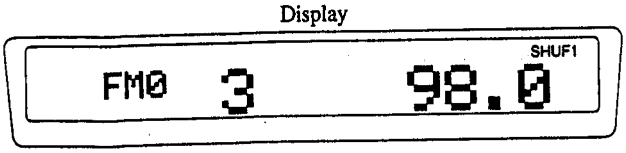
3. Push the preset 3 button.

Display


SHUF1
FM
3
98.0

4. Adjust with the volume RV3 on TU1 so that the "FM" indication turns to "FM0" indication on the display window.
   But, in case of already indicated "FM0", turn the RV3 so that put out light "0" indication and adjustment.

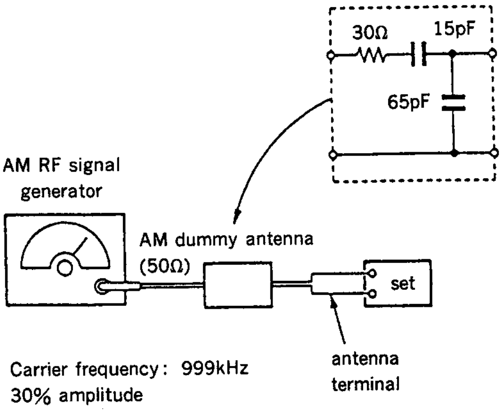
Display


SHUF1
FM0
3
98.0

Adjustment Location: See page 25.

MW Auto Scan/Stop Level Adjustment

Setting:
TUNER button: MW

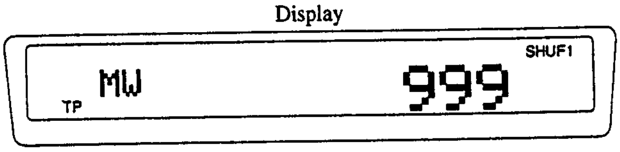

30Ω
15pF
65pF
AM RF signal generator
AM dummy antenna (50Ω)
set
antenna terminal

Carrier frequency: 999kHz
30% amplitude modulation by 400Hz signal
Output level : 33dB (44.7μV)

Procedure:

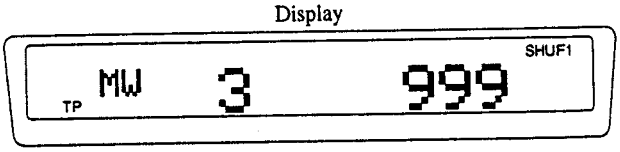
1. Set to the test mode. (See page 21.)
2. Push the TUNER button and set to MW.

Display


SHUF1
TP
MW
999

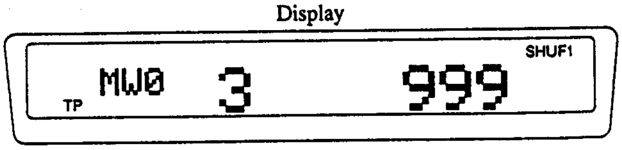
3. Push the preset 3 button.

Display


SHUF1
TP
MW
3
999

4. Adjust with the volume RV1 on TU1 so that the "MW" indication turns to "MW0" indication on the display window.
   But, in case of already indicated "MW0", turn the RV1 so that put out light "0" indication and adjustment.

Display

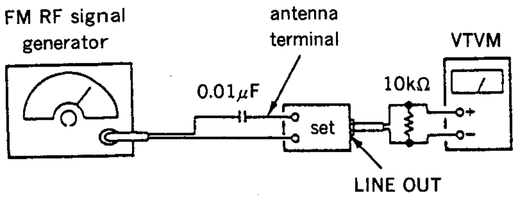

SHUF1
TP
MW0
3
999

Adjustment Location: See page 25.

High Cut Control Effect Adjustment

Setting :

TUNER button : FM


FM RF signal generator
antenna terminal
VTVM
0.01μF
10kΩ
set
+
−
LINE OUT

Carrier frequency : 98.0MHz
Output level : 60dB (1mV)
Mode : mono
Modulation : 10kHz, 40kHz deviation

Procedure :

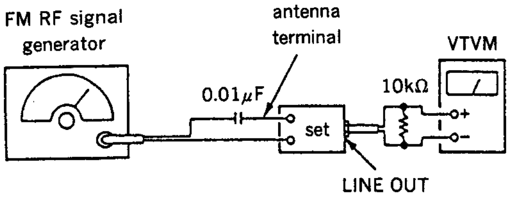
1. Tune the 98.0MHz.
2. The then output level is supposing that (A) dB.
3. Adjust with the volume RV2 on TU1 so that the output level is (A) −5dB then signal generator input set to 20dB.

Adjustment Location : See page 25.

FM Noise Focus Adjustment

Setting :

TUNER button : FM


FM RF signal generator
antenna terminal
VTVM
0.01μF
10kΩ
set
+
−
LINE OUT

Carrier frequency : 98.0MHz
Output level : 60dB (1mV)
Mode : mono
Modulation : 1kHz, 75kHz deviation

Procedure :

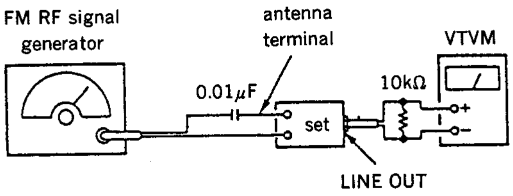
1. Tune the 98.0MHz.
2. The then output level is supposing that (B) dB.
3. Adjust with the volume RV5 on TU1 so that the output level is (B) −30dB then signal generator input set to −20dB.

Adjustment Location : See page 25.

FM Stereo Separation Adjustment

Setting :

TUNER button : FM


FM RF signal generator
antenna terminal
VTVM
0.01μF
10kΩ
set
+
−
LINE OUT

Carrier frequency : 98.0MHz
Output level : 70dB (3.2mV)
Mode : stereo
Modulation : main : 1kHz, 20kHz deviation (26%)
sub : 1kHz, 20kHz deviation (26%)
19kHz pilot : 7.5kHz deviation (10%)

Procedure :

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV4 on TU1 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV4 on TU1 for minimum reading.

L-CH Stereo separation : Ⓐ−Ⓑ
R-CH Stereo separation : Ⓒ−Ⓓ
The separations of both channels should be equal.

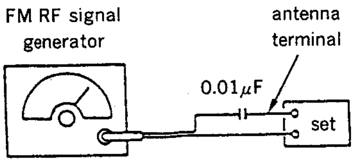
Specification : Separation more than 30dB

Adjustment Location : See page 25.

RDS S-Meter Adjustment

Setting :

TUNER button : FM

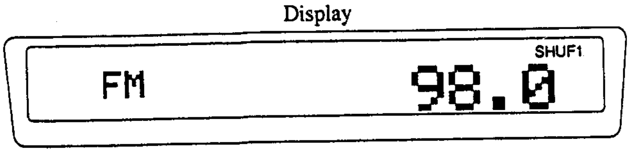

FM RF signal generator
antenna terminal
0.01µF
set

Carrier frequency : 98.0MHz
Output level : 35dB (56.2µV)
Mode : mono
Modulation : no modulation

Procedure :

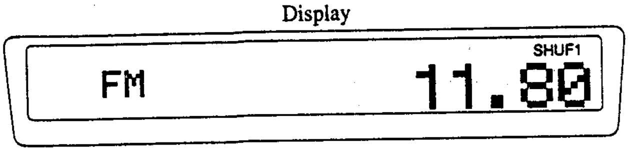
1. Set to the test mode. (See page 21.)
2. Push the TUNER button and set to FM.

Display


SHUF1
FM
98.0

3. Push the preset 10 button.
4. Adjust RV1 so that the display indication is "11.80".

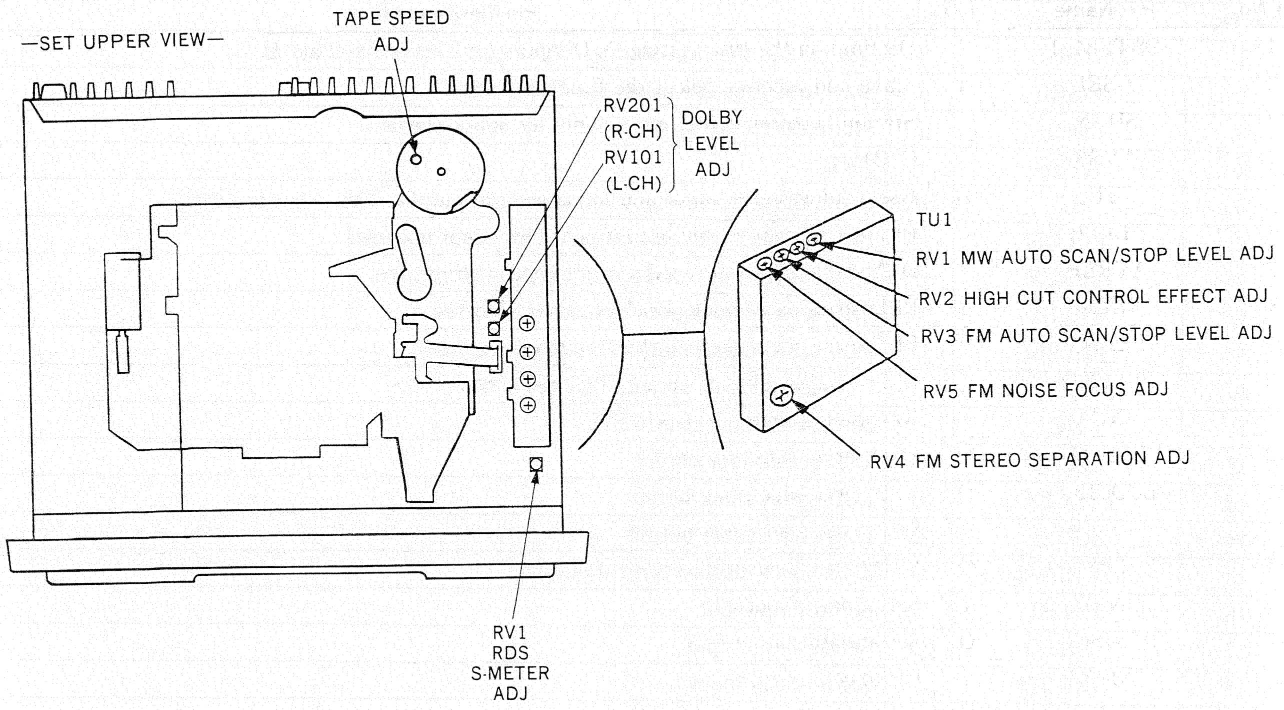
Display


SHUF1
FM
11.80

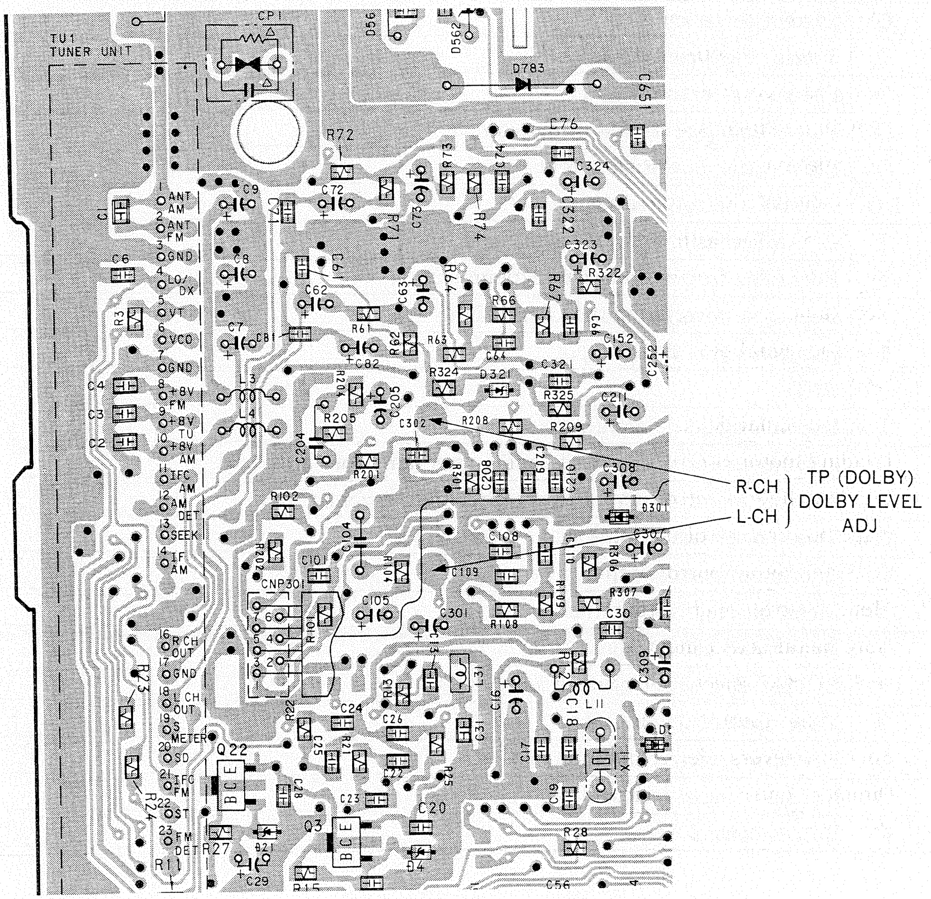
Specification : Display indication : 11.60 to 12.00

Adjustment Location : See page 25.

Adjustment Location :


—SET UPPER VIEW—
TAPE SPEED
ADJ
RV201
(R-CH)
RV101
(L-CH)
DOLBY
LEVEL
ADJ
TU1
RV1 MW AUTO SCAN/STOP LEVEL ADJ
RV2 HIGH CUT CONTROL EFFECT ADJ
RV3 FM AUTO SCAN/STOP LEVEL ADJ
RV5 FM NOISE FOCUS ADJ
RV4 FM STEREO SEPARATION ADJ
RV1
RDS
S-METER
ADJ

—main board (side B)—


TU1
TUNER UNIT
CP1
1 ANT AM
2 ANT FM
3 GND
4 LO/DX
5 VT
6 VCO
7 GND
8 +8V FM
9 +8V TU
10 +8V AM
11 IFC AM
12 AM DET
13 SEEK
14 IF AM
16 R CH OUT
17 GND
18 L CH OUT
19 S METER
20 SD
21 IFC FM
22 ST
23 FM DET
CNP301
Q22
Q3
BCE
D783
R-CH
L-CH
TP (DOLBY)
DOLBY LEVEL
ADJ

SECTION 6
DIAGRAMS

6-1. IC PIN DESCRIPTIONS

• IC501 μPD78058GC-060-3B9 (System Control)

Pin No.	Pin Name	I/O	Pin Description
1	DSTSEL 1	I	Destination the first setting A/D input. This set is fixed at "L".
2	F-SEL	I	Slave and function select the first setting
3	SD IN	I	Station detector detect input. This set is not used.
4	AVSS	—	GND
5	ST	I/O	Use a thing stereo input and monaural output. This set is not used.
6	PLLCE	O	PLL serial chip enable output. This set is not used.
7	AVREF	—	D/A conversion reference power supply voltage.
8	PLLSI	I	PLL serial data input. This set is not used.
9	PLLSO	O	PLL serial data output. This set is not used.
10	PLLCKO	O	PLL serial clock output. This set is not used.
11	NC	—	Not used. Connect to GND.
12	LCDSO	O	LCD serial data output
13	LCDCKO	O	LCD serial clock output
14	LCDCE	O	LCD chip enable output
15	$\overline{\text{LCDINH}}$	O	LCD blank display control output
16	UNISI	I	Serial data input
17	UNISO	O	Serial data output
18	UNICKI	I	Serial clock input
19	UNICKO	O	Serial clock output
20	BUSON	O	BUS ON control output
21	SYSRST	O	System reset control output
22	PW ON	O	System power control output
23	TUNON	O	Tuner power control output
24	FM ON	O	FM power control output
25	AMPON	O	Power amplifier power control output
26	ILLON	O	Illumination power control output
27	DOLON	I/O	DOLBY control input/output
28	AMSIN	I	At AMS, music with/without detect input
29	REL T	I	Reel table forward rotation detect input
30	REL S	I	Reel table reverse rotation detect input
31, 32	POS0, 1	I	Position signal detect input
33	GND	—	GND
34, 35	POS2, 3	I	Position signal detect input
36	LM LOD	O	Loading motor control output (Loading direction: forward)
37	LM EJ	O	Loading motor control output (Eject direction: reverse)
38	TAPEON	O	Tape power control output
39	CM ON	O	Capstan motor control output
40	MTLON	I/O	Metal control input/output
41	$\overline{\text{MTLIN}}$	I	Auto metal detect input
42	DOLBC	I/O	DOLBY B/C select control input/output
43	TAPMUT	O	Tape mute control output
44	N/ROUT	O	Forward/reverse detect output
45	DIMMER	I/O	Dimmer control input/output
46	BEEP	O	Buzzer control output

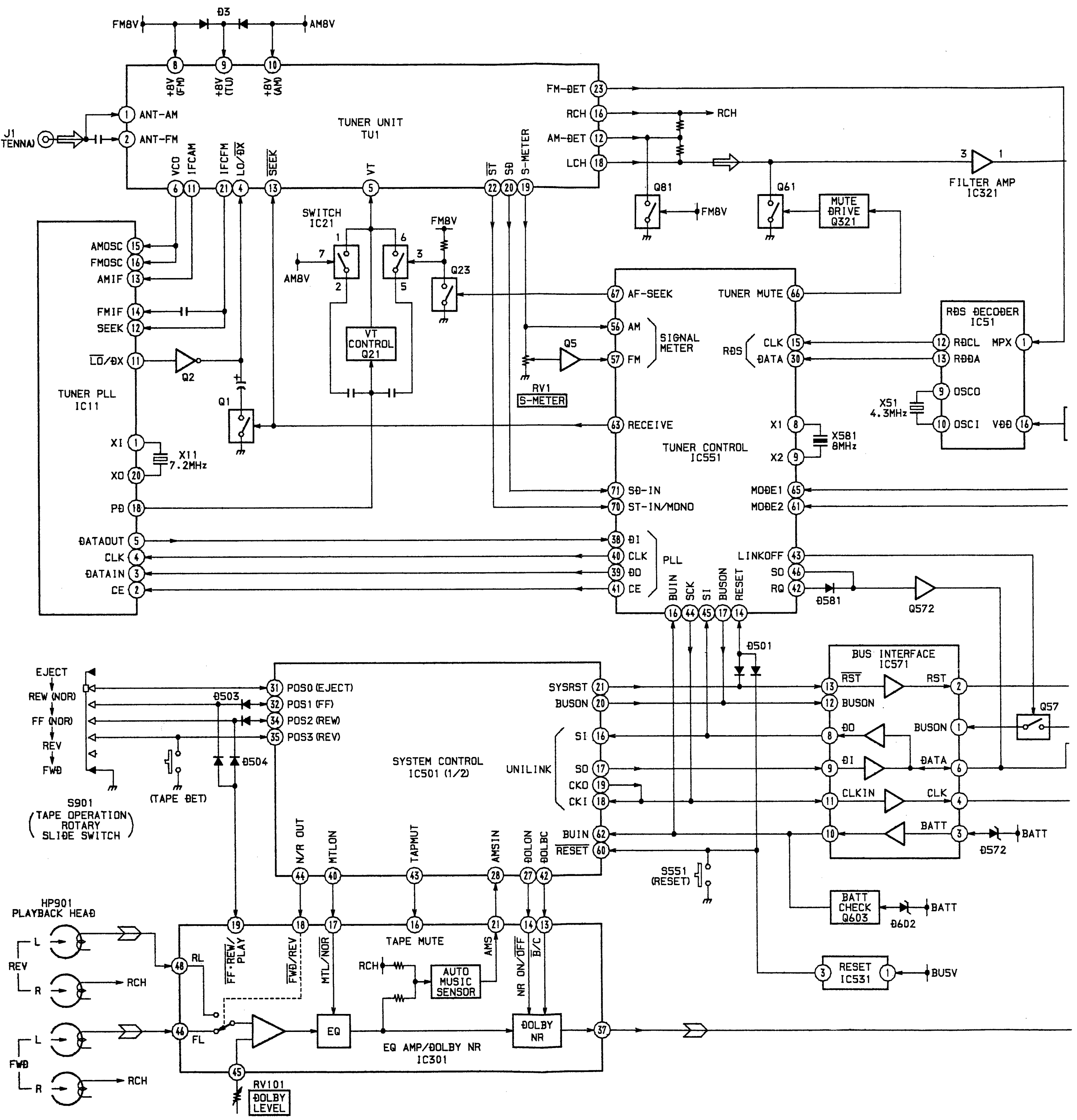
Pin No.	Pin Name	I/O	Pin Description
47	COLOR	I/O	Illumination color select control input/output
48	$\overline{\text{AD ON}}$	O	A/D select power control output
49	TESTIN	I	Test mode setting input
50	RC IN1	I	Rotary commander input
51	MUT	O	System mute control output
52	VOLCE	O	Electron volume serial chip enable output
53	SUBCE	O	Sub volume serial chip enable output
54	VOLCKO	O	Electron volume serial clock output
55	SUBCKO	O	Sub volume serial clock output
56	VOLSO	O	Electron volume serial data output
57	MTLSEL	I	Auto metal function with/without the first setting
58	$\overline{\text{EQ SEL}}$	I	Equalizer connection with/wituout the first setting
59	RAMBU	I	RAM reset detect input
60	$\overline{\text{RESET}}$	—	Reset input
61	SIRCS	I	Remote commander input
62	BU IN	I	Back up power detect input
63	KEYACK	I	Key input acknowledge
64	$\overline{\text{ACCIN}}$	I	Accessory power detect input
65	PW SEL	I	Power select the first setting
66	$\overline{\text{TELMUT}}$	I	Telephone mute detect input
67	NOSESW	I	Front panel with/without detect input
68	VDD	—	Microcomputer power voltage supply
69	X OUT	—	Main ceramic oscillator output (5MHz)
70	X IN	—	Main ceramic oscillator input (5MHz)
71	GND	—	GND
72	XT OUT	—	Sub crystal oscillator output (32.67kHz)
73	XT IN	—	Sub crystal oscillator input (32.67kHz)
74	AVDD	—	A/D conversion power supply voltage
75	AVREF	—	A/D conversion reference power supply voltage
76	KEYIN 0	I	Key input
77	KEYIN 1	I	
78	RC IN 0	I	Rotary commander input
79	VSM	I	FM/AM common signal meter A/D conversion input. This set is not used.
80	DSTSEL 0	I	Destination the first setting A/D input. This set is fixed at "L".

• IC551 MN1883220SZG (Tuner Control)

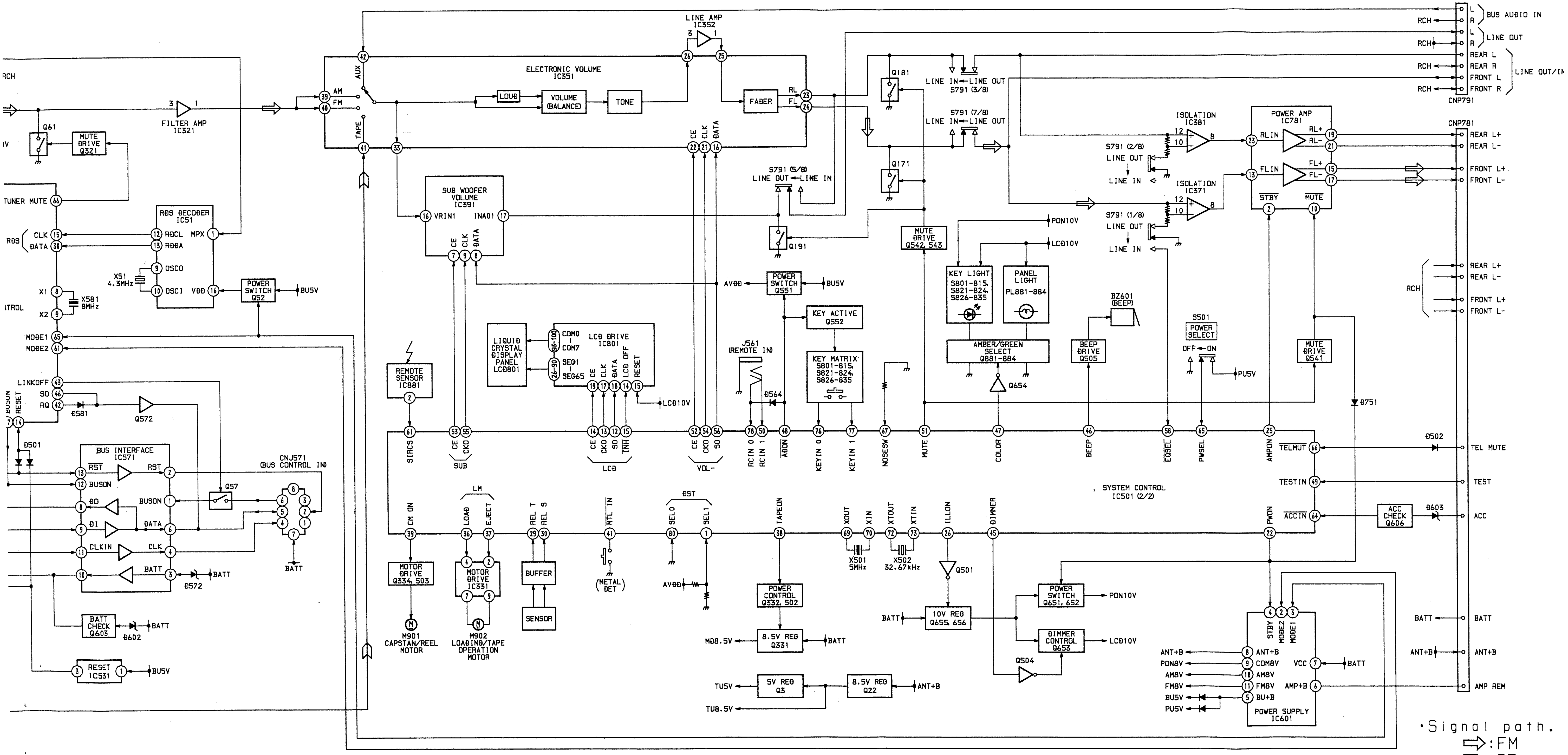
Pin No.	Pin Name	I/O	Pin Description
1—6	—	—	Not used. (open)
7	VDD	—	Power supply terminal (+5V)
8	X1	I	Clock input (8MHz)
9	X2	O	Clock output (8MHz)
10	GND	—	GND terminal
11	XI	I	Not used. (Connect to GND.)
12	—	—	No connection
13	XO	O	Not used. (Connect to GND.)
14	RESET	I	Reset signal input
15	RDS-CLK	I	RDS CLK signal input from the RDS decoder (IC51).
16	BU-IN	I	Backup power supply detection input. "H" : Backup ON
17	BUSON	I	BUS interface ON/OFF selection input from the system control (IC501).
18—29	—	—	Not used. (open)
30	RDS-DATA	I	RDS DATA signal input from the RDS decoder (IC51).
31	—	—	Not used. (Connect to GND.)
32—35	—	—	Not used. (open)
36	—	—	Not used. (Connect to GND.)
37	—	—	Not used. (Fixed at "L".)
38	PLL-DI	I	Data input from the tuner PLL (IC11).
39	PLL-DO	O	Data output to the tuner PLL (IC11).
40	PLL-CLK	O	Clock output to the tuner PLL (IC11).
41	CE	O	Chip enable output to the tuner PLL (IC11).
42	RQ	O	BUS interface request output. Terminal for requesting communication Requests at "H".
43	LINK-OFF	O	BUS interface link ON/OFF selection output. "H" : LINK OFF
44	SCK	I	Serial clock input from the system control (IC501).
45	SI	I	Data input from the BUS unit (IC571).
46	SO	O	Data output to the BUS unit (IC571).
47	VDD	—	Power supply terminal (+5V)
48	AVDD	—	Power supply terminal (+5V)
49	VREF	I	Reference voltage input terminal of A/D conversion.
50, 51	—	—	Not used. (Connect to GND.)
52	SRAM-RST	—	Not used. (Fixed at "L".)
53	MUTE-SEL	—	Not used. (Connect to GND.)
54	DIST-SEL 1	I	Model selection input terminal. (Fixed at "L" : AEP, UK model, "H" : German model.)
55	DIST-SEL 0	I	Model selection input terminal. (Fixed at "L".)
56	AM-S. METER	I	AM S meter voltage detection input
57	FM-S. METER	I	FM S meter voltage detection input. Uses the A/D conversion functions during BTM and RDS.
58—60	—	—	Not used. (Connect to GND.)
61	MODE 2	O	Tuner ON/OFF selection output to the power regulator (IC601).
62	—	—	Not used. (open)
63	RECEIVE	I	Receive input. Input level "L" when change the frequency.

Pin No.	Pin Name	I/O	Pin Description
64	—	—	Not used. (Fixed at "L".)
65	MODE 1	O	FM ON/OFF selection output to the power regulator (IC601).
66	TUNER-MUTE	O	Muting control signal output
67	AF-SEEK	O	AF seek control output
68	—	—	Not used. (Fixed at "L".)
69	—	O	Not used. (open)
70	ST-IN-MONO	I	Stereo indicator control input
71	SD-IN	I	SD input
72—80	—	—	Not used. (open)

6-2. BLOCK DIAGRAM


FM8V
D3
AM8V
+8V (FM)
+8V (TU)
+8V (AM)
J1 (ANTENNA)
ANT-AM
ANT-FM
TUNER UNIT TU1
VCO
IFCAM
IFCFM
LO/DX
SEEK
VT
ST
SD
S-METER
FM-DET
RCH
AM-DET
LCH
Q81
Q61
MUTE DRIVE Q321
FILTER AMP IC321
SWITCH IC21
Q23
VT CONTROL Q21
AMOSC
FMOSC
AMIF
FMIF
SEEK
LO/DX
Q2
Q1
TUNER PLL IC11
XI
XO
X11 7.2MHz
PD
DATAOUT
CLK
DATAIN
CE
Q5
RV1 S-METER
AF-SEEK
AM
FM
SIGNAL METER
RECEIVE
TUNER CONTROL IC551
SD-IN
ST-IN/MONO
DI
CLK
DO
CE
PLL
BUIN
SCK
SI
BUSON
RESET
TUNER MUTE
RDS
CLK
DATA
X1
X2
X581 8MHz
MODE1
MODE2
LINKOFF
SO
RQ
D581
Q572
RDS DECODER IC51
RDCL
RDDA
MPX
OSCO
OSCI
VDD
X51 4.3MHz
D501
BUS INTERFACE IC571
RST
BUSON
DO
DI
DATA
CLKIN
CLK
BATT
Q57
D572
EJECT
REW (NOR)
FF (NOR)
REV
FWD
D503
D504
S901 (TAPE OPERATION ROTARY SLIDE SWITCH)
(TAPE DET)
POS0 (EJECT)
POS1 (FF)
POS2 (REW)
POS3 (REV)
SYSTEM CONTROL IC501 (1/2)
SYSRST
BUSON
UNILINK
SI
SO
CKO
CKI
BUIN
RESET
N/R OUT
MTLON
TAPMUT
AMSIN
DOLON
DOLBC
S551 (RESET)
BATT CHECK Q603
D602
BATT
RESET IC531
BUSV
HP901 PLAYBACK HEAD
REV
FWD
L
R
RCH
RL
FL
FF·REW/PLAY
FWD/REV
MTL/NOR
TAPE MUTE
AMS
NR ON/OFF
B/C
RCH
AUTO MUSIC SENSOR
EQ
DOLBY NR
EQ AMP/DOLBY NR IC301
RV101 DOLBY LEVEL

04


RCH
FILTER AMP
IC321
Q61
MUTE
DRIVE
Q321
TUNER MUTE
RDS DECODER
IC51
RDCL
RDDA
MPX
OSCO
OSCI
VDD
RDS
CLK
DATA
X51
4.3MHz
X1
X2
X581
8MHz
POWER
SWITCH
Q52
BU5V
MODE1
MODE2
LINKOFF
SO
RQ
D581
Q572
RESET
D501
BUS INTERFACE
IC571
RST
BUSON
DO
DI
DATA
CLKIN
CLK
BATT
D572
Q57
CNJ571
(BUS CONTROL IN)
BATT
CHECK
Q603
D602
RESET
IC531
AUX
AM
FM
TAPE
ELECTRONIC VOLUME
IC351
LOUD
VOLUME
(BALANCE)
TONE
FADER
RL
FL
LINE AMP
IC352
SUB WOOFER
VOLUME
IC391
VRIN1
INA01
CE
CLK
DATA
LIQUID
CRYSTAL
DISPLAY
PANEL
LCD801
COM0
COM7
SEG1
SEG65
LCD DRIVE
IC801
LCD OFF
RESET
LCD10V
REMOTE
SENSOR
IC881
S791 (5/8)
LINE OUT
LINE IN
Q191
POWER
SWITCH
Q551
AVDD
BU5V
KEY ACTIVE
Q552
J561
(REMOTE IN)
D564
KEY MATRIX
S801-815,
S821-824,
S826-835
Q181
Q171
LINE IN
LINE OUT
S791 (3/8)
S791 (7/8)
MUTE
DRIVE
Q542, 543
PON10V
LCD10V
KEY LIGHT
S801-815,
S821-824,
S826-835
PANEL
LIGHT
PL881-884
AMBER/GREEN
SELECT
Q881-884
Q654
BZ601
(BEEP)
BEEP
DRIVE
Q505
S791 (2/8)
S791 (1/8)
ISOLATION
IC381
ISOLATION
IC371
POWER AMP
IC781
RLIN
FLIN
RL+
RL-
FL+
FL-
STBY
MUTE
S501
POWER
SELECT
OFF
ON
PU5V
MUTE
DRIVE
Q541
D751
SIRCS
CE
CKO
SUB
CE
CKO
SO
INH
LCD
CE
CKO
SO
VOL-
RCIN 0
RCIN 1
ADON
KEYIN 0
KEYIN 1
NOSESW
MUTE
COLOR
BEEP
EQSEL
PWSEL
AMPON
TELMUT
TESTIN
ACCIN
SYSTEM CONTROL
IC501 (2/2)
CM ON
LM
LOAD
EJECT
REL T
REL S
MTL IN
DST
SEL0
SEL1
TAPEON
XOUT
XIN
XTOUT
XTIN
ILLON
DIMMER
PWON
MOTOR
DRIVE
Q334, 503
M901
CAPSTAN/REEL
MOTOR
MOTOR
DRIVE
IC331
M902
LOADING/TAPE
OPERATION
MOTOR
BUFFER
SENSOR
(METAL/DET)
AVDD
POWER
CONTROL
Q332, 502
8.5V REG
Q331
MD8.5V
BATT
5V REG
Q3
8.5V REG
Q22
ANT+B
TU5V
TU8.5V
X501
5MHz
X502
32.67kHz
Q501
10V REG
Q655, 656
POWER
SWITCH
Q651, 652
PON10V
DIMMER
CONTROL
Q653
LCD10V
Q504
ACC
CHECK
Q606
D603
D502
STBY
MODE2
MODE1
ANT+B
COM8V
AM8V
FM8V
BU+B
VCC
AMP+B
PON8V
AM8V
FM8V
BU5V
PU5V
POWER SUPPLY
IC601
L
R
BUS AUDIO IN
LINE OUT
REAR L
REAR R
FRONT L
FRONT R
LINE OUT/IN
CNP791
CNP781
REAR L+
REAR L-
FRONT L+
FRONT L-
REAR L+
REAR L-
FRONT L+
FRONT L-
TEL MUTE
TEST
ACC
BATT
ANT+B
AMP REM

•Signal path.
⇨:FM
⇨:PB

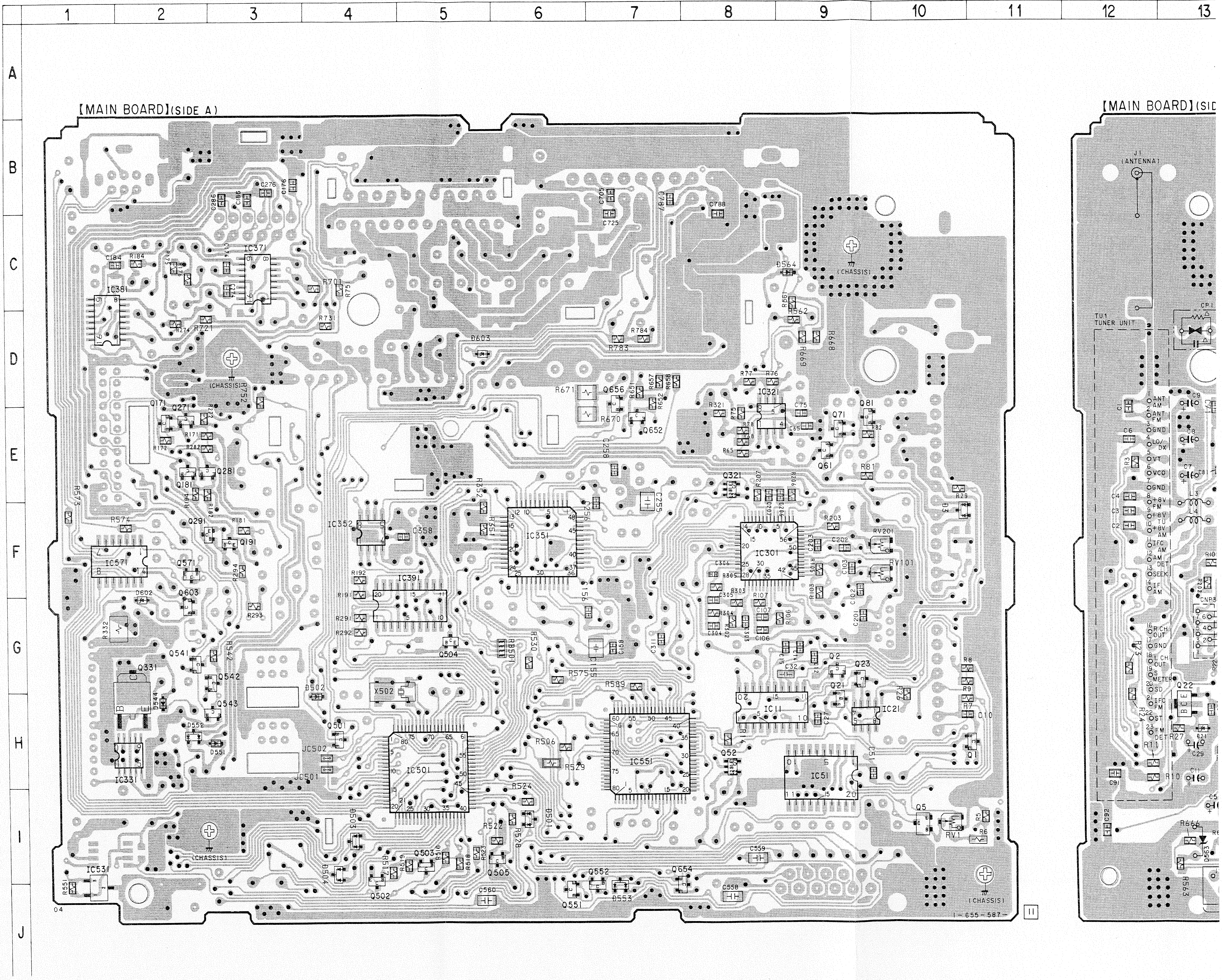
6-3. PRINTED WIRING BOARDS—MAIN SECTION— • Refer to page 45 for Semiconductor Lead Layouts.

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D3	F-10	IC371	C-3
D4	H-14	IC381	C-1
D21	H-13	IC391	F-4
D301	F-15	IC501	H-5
D321	E-14	IC531	I-1
D331	G-20	IC551	H-7
D332	G-21	IC571	F-1
D501	I-6	IC601	D-18
D502	G-4	IC781	B-18
D503	I-4		
D504	I-4	Q1	H-10
D543	F-20	Q2	G-9
D544	H-2	Q3	H-13
D551	H-3	Q5	I-10
D552	H-2	Q21	H-9
D553	J-7	Q22	H-13
D554	I-20	Q23	G-9
D555	J-15	Q52	H-8
D561	C-14	Q61	E-9
D562	C-14	Q71	E-9
D563	I-13	Q81	E-9
D564	C-9	Q171	E-2
D571	F-20	Q181	E-2
D572	F-20	Q191	F-3
D573	B-21	Q271	E-2
D574	B-20	Q281	E-2
D575	F-20	Q291	F-2
D581	G-15	Q321	E-8
D602	F-2	Q331	G-2
D603	D-5	Q332	G-21
D651	D-16	Q334	F-21
D652	I-14	Q501	H-4
D653	I-14	Q502	I-4
D654	I-14	Q503	I-5
D655	I-13	Q504	G-5
D656	I-13	Q505	I-5
D657	I-13	Q541	G-2
D751	E-19	Q542	G-2
D781	D-16	Q543	H-2
D782	D-16	Q551	J-6
D783	D-14	Q552	I-7
D991	B-18	Q571	F-2
		Q572	F-21
IC11	H-8	Q603	F-2
IC21	H-9	Q606	E-19
IC51	H-9	Q651	D-16
IC301	F-8	Q652	E-7
IC321	E-8	Q653	D-15
IC331	H-2	Q654	I-7
IC351	F-6	Q655	D-17
IC352	F-4	Q656	D-7

Note :

- ○— : parts extracted from the component side.
- ● : Through hole.
- ▨ : Pattern on the side which is seen. (The other layer's patterns are not indicated.)
- Abbreviation
  G : German model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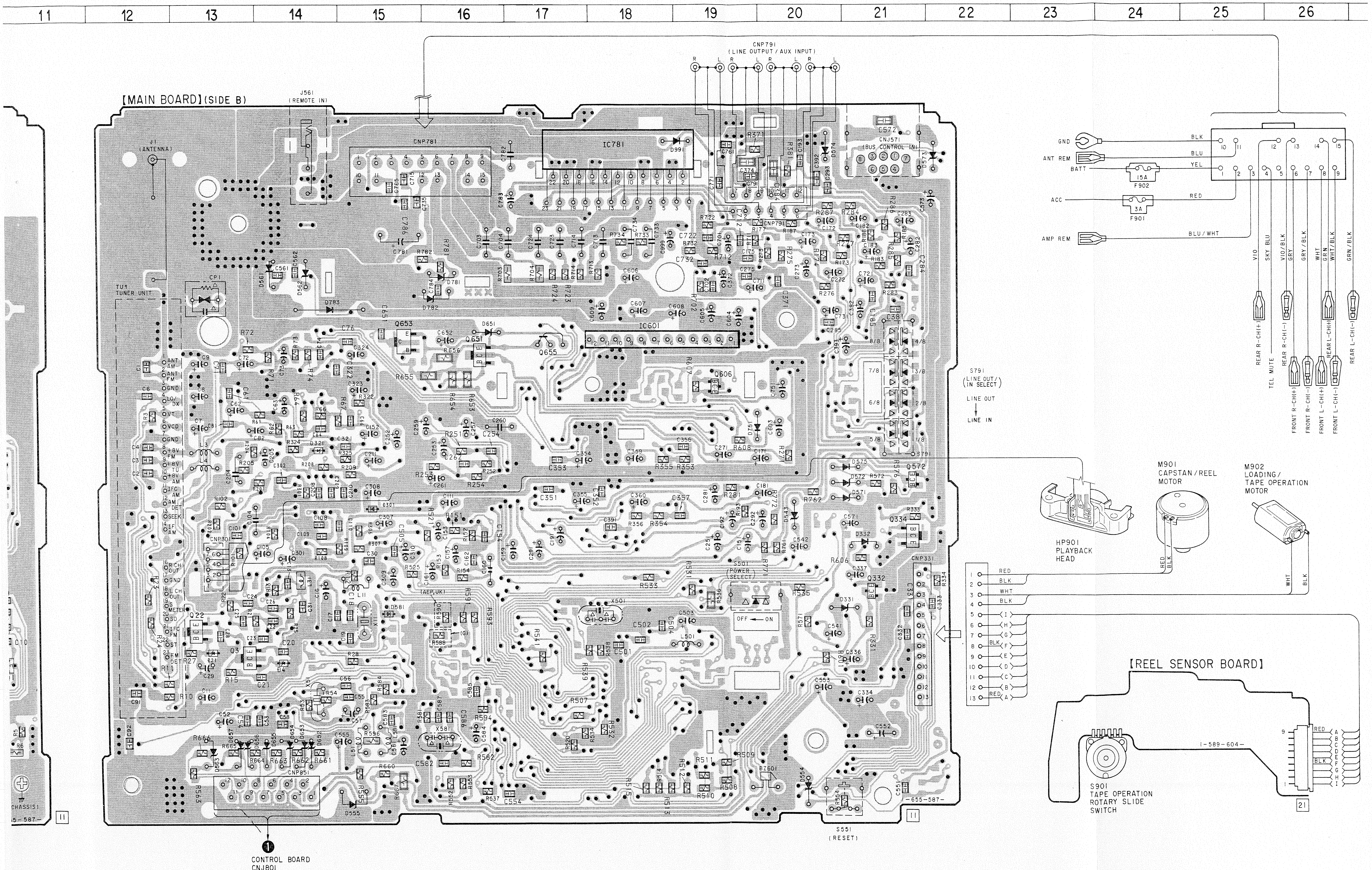
12
13
A
B
C
D
E
F
G
H
I
J
【MAIN BOARD】(SIDE A)
【MAIN BOARD】(SID
J1 (ANTENNA)
TU1 TUNER UNIT
(CHASSIS)
IC371
IC381
IC391
IC352
IC351
IC301
IC321
IC571
IC331
IC501
IC551
IC51
IC11
IC21
IC531
X502
RV201
RV101
RV1
1-655-587-



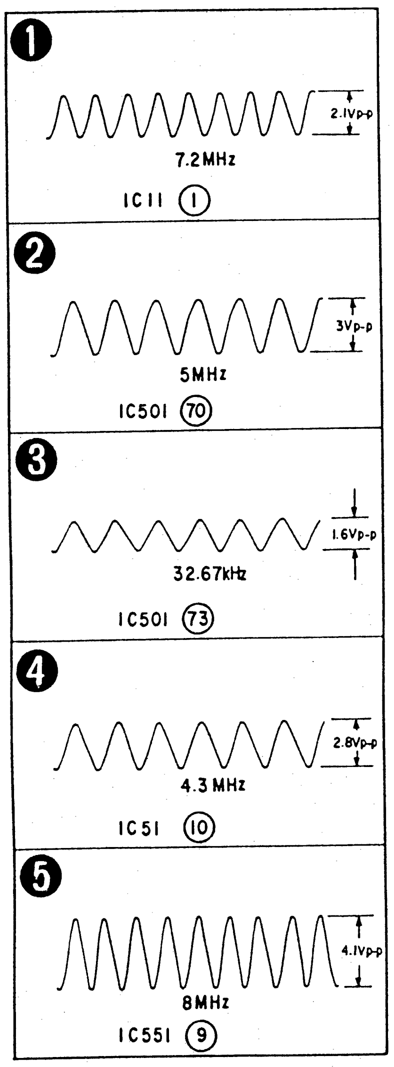
11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
【MAIN BOARD】(SIDE B)
J561 (REMOTE IN)
J1 (ANTENNA)
TU1 TUNER UNIT
CP1
CNP781
IC781
IC601
CNP791 (LINE OUTPUT / AUX INPUT)
R L R L R L R L
CNJ571 (BUS CONTROL IN)
C572
CNP301
CNP331
CNP851
S501 (POWER SELECT) OFF ← ON
S791 (LINE OUT/ IN SELECT)
LINE OUT ↓ LINE IN
X501
X581
BZ601
S551 (RESET)
(AEP,UK)
ANT AM, ANT FM, GND, LO/DX, VT, VCD, GND, +8V FM, +8V TU, +8V AM, IFC AM, DET, SEEK, IF AM
R-CH OUT, GND, L-CH OUT, S METER, SD, IFC FM, ST, FM DET
1-655-587-
CONTROL BOARD CNJ801
(CHASSIS)
GND
ANT REM
BATT
ACC
AMP REM
BLK
BLU
YEL
RED
BLU/WHT
15A F902
3A F901
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
VIO
SKY BLU
VIO/BLK
GRY
GRY/BLK
WHT
GRN
WHT/BLK
GRN/BLK
REAR R-CH(+)
TEL MUTE
REAR R-CH(-)
FRONT R-CH(+)
FRONT R-CH(-)
FRONT L-CH(+)
REAR L-CH(+)
FRONT L-CH(-)
REAR L-CH(-)
HP901 PLAYBACK HEAD
M901 CAPSTAN/REEL MOTOR
M902 LOADING/ TAPE OPERATION MOTOR
RED BLK WHT BLK
I H G F E D C B A
【REEL SENSOR BOARD】
1-589-604-
S901 TAPE OPERATION ROTARY SLIDE SWITCH
21
11

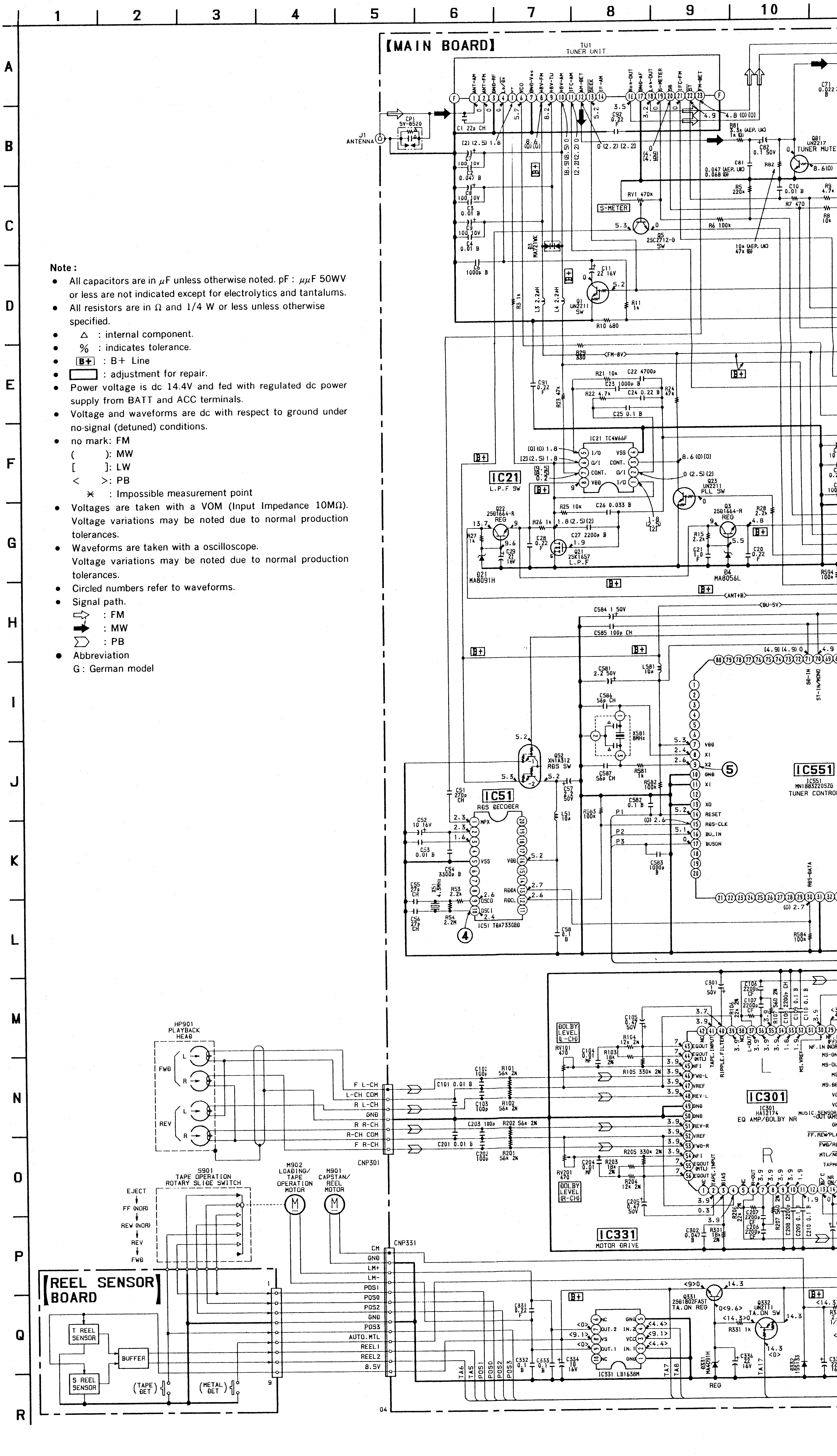
6-4. SCHEMATIC DIAGRAM—MAIN SECTION— • Refer to page 46 for IC Block Diagrams.

Note :

- All capacitors are in μF unless otherwise noted. pF : $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- % : indicates tolerance.
- B+ : B+ Line
- ▭ : adjustment for repair.
- Power voltage is dc 14.4V and fed with regulated dc power supply from BATT and ACC terminals.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- no mark: FM
  ( ): MW
  [ ]: LW
  < >: PB
  ⋇ : Impossible measurement point
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
  ➡ : MW
  ⊳ : PB
- Abbreviation
  G : German model

• Waveforms

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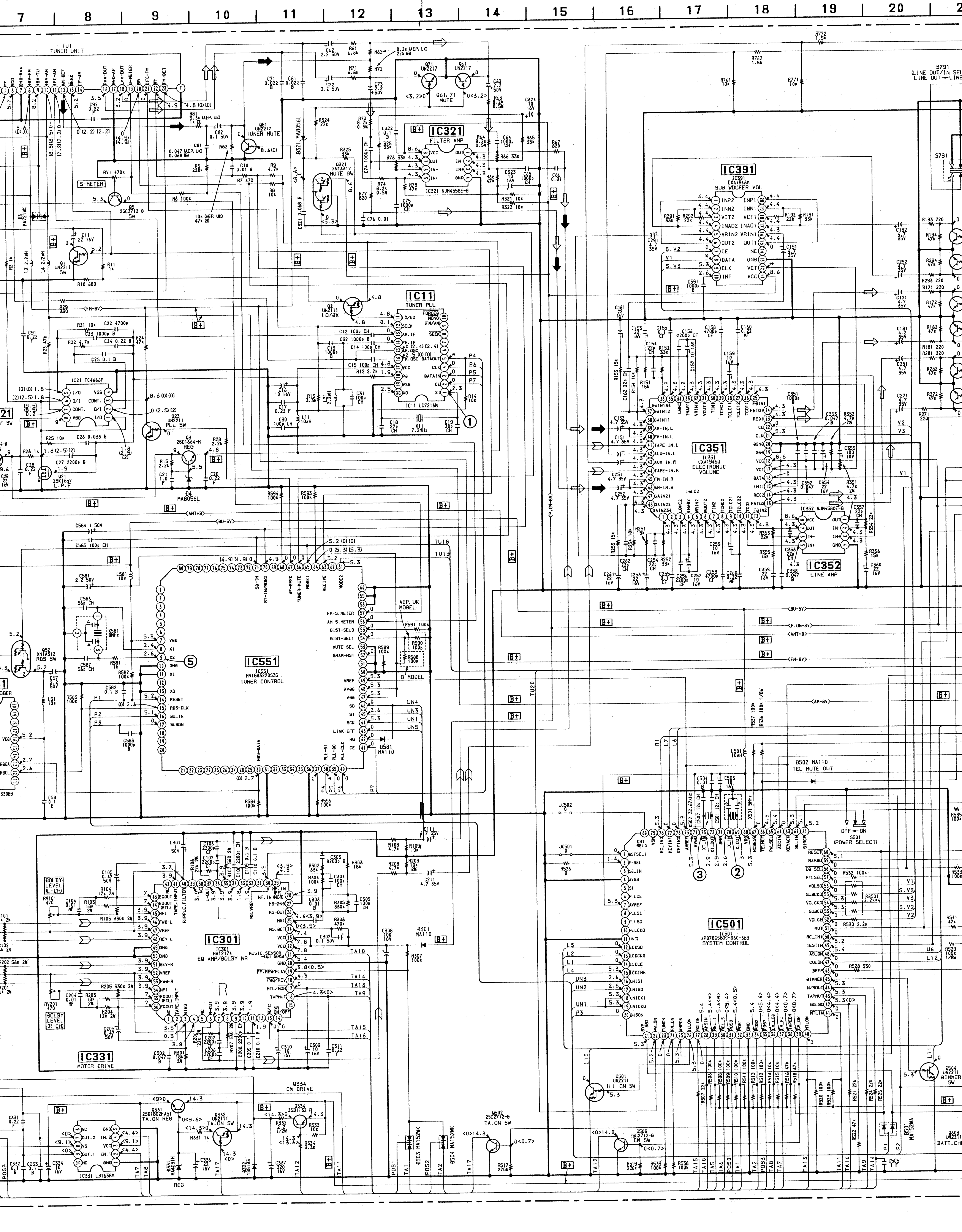
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
【MAIN BOARD】
TU1 TUNER UNIT
J1 ANTENNA
CP1 SV-8520
S-METER
Q5 2SC2712-O SW
Q1 UN2211 SW
D3 MA721WK
Q81 UN2217 TUNER MUTE
IC21 L.P.F SW
IC21 TC4W66F
Q22 2SD1664-R REG
Q21 2SK1657 L.P.F
D21 MA8091H
Q23 UN2211 PLL SW
Q3 2SD1664-R REG
D4 MA8056L
IC51 RDS DECODER
IC51 TDA7330BD
Q52 XN1A312 RDS SW
X51 4.3MHz
X581 8MHz
IC551
IC551 MN188322DSZG TUNER CONTROL
IC301
IC301 HA12174 EQ AMP/DOLBY NR
DOLBY LEVEL (L-CH)
DOLBY LEVEL (R-CH)
RV101
RV201
IC331 MOTOR DRIVE
IC331 LB1638M
Q331 2SD1802FAST TA.ON REG
Q332 UN2111 TA.ON SW
D331 MA4091H
HP901 PLAYBACK HEAD
FWD
REV
S901 TAPE OPERATION ROTARY SLIDE SWITCH
EJECT
FF (NOR)
REW (NOR)
REV
FWD
M902 LOADING/TAPE OPERATION MOTOR
M901 CAPSTAN/REEL MOTOR
CNP301
CNP331
F L-CH
L-CH COM
R L-CH
GND
R R-CH
R-CH COM
F R-CH
CH
GND
LM+
LM-
POS1
POS0
POS2
GND
POS3
AUTO.MTL
REEL1
REEL2
8.5V
【REEL SENSOR BOARD】
T REEL SENSOR
S REEL SENSOR
BUFFER
(TAPE DET)
(METAL DET)

agrams.


7
8
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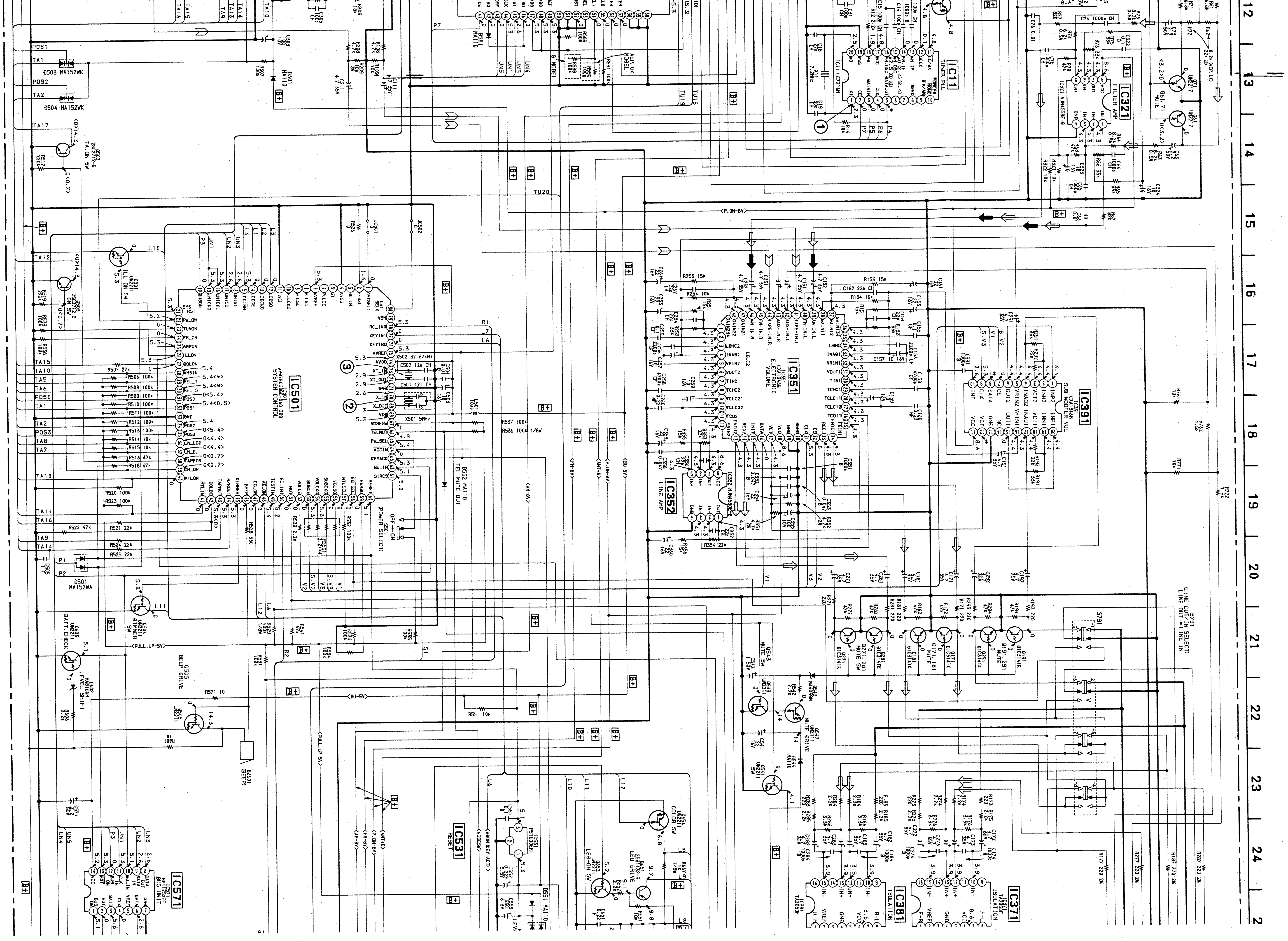
11
12
13
14
15
16
17
18
19
20
TU1 TUNER UNIT
IC21 TC4W66F
IC11 TUNER PLL
IC11 LC7216M
IC321 FILTER AMP
IC321 NJM4558E-B
IC391 CXA1846M SUB WOOFER VOL
IC351 CXA1946Q ELECTRONIC VOLUME
IC352 NJM4580E-B LINE AMP
IC551 MN1883220SZG TUNER CONTROL
IC501 μPD78C56GC-060-3B9 SYSTEM CONTROL
IC301 HA12174 EQ AMP/DOLBY NR
IC331 LB1638M MOTOR DRIVE
DOLBY LEVEL (L-CH)
DOLBY LEVEL (R-CH)
Q81 UN2217 TUNER MUTE
Q71 UN2217
Q61 UN2217
Q61, 71 MUTE
Q321 XN1A312 MUTE SW
Q2 UN2111 LO/DX
Q23 UN2211 PLL SW
Q3 2SD1664-R REG
Q21 2SK1657 L.P.F
Q1 UN2211 SW
Q5 2SC2712-G SW
Q52 XN1A312 RDS SW
S-METER
S791 LINE OUT/IN SEL LINE OUT→LINE
S501 (POWER SELECT) OFF ON
D502 MA110 TEL MUTE OUT
Q501 UN2211 ILL ON SW
Q503 2SC2712-G CM SW
Q502 2SC2712-G TA.ON SW
Q504 UN2211 DIMMER SW
Q334 2SB1132-R CM DRIVE
Q331 2SB1802FAST TA.ON REG
Q332 UN2111 TA.ON SW
D503 MA152WK
D504 MA152WK
D501 MA152WA
D581 MA110
D301 MA110
AEP, UK MODEL
G MODEL
X581 8MHz
X11 7.2MHz
X501 5MHz
X502 32.67kHz


IC11 TUNER PLL
IC321 FILTER AMP
IC501 SYSTEM CONTROL
IC351 ELECTRONIC VOLUME
IC352 LINE AMP
IC391 SUB WOOFER VOL
IC371 ISOLATION
IC381 ISOLATION
IC531 RESET
IC571 BUS UNIT
S791 LINE OUT-LINE IN SELECT
S501 POWER SELECT
D502 TEL MUTE OUT
Q502 TA-ON SW
Q503 CH SW
Q501 ILL ON SW
Q541 DIMMER SW
Q601 BATT.CHECK
Q602 LEVEL SHIFT
Q505 BEEP DRIVE
BZ601 (BEEP)
Q543 MUTE SW
Q542 MUTE DRIVE
Q654 COLOR SW
Q652 LED DRIVE
Q651 LED-ON SW
Q611,711 MUTE
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13
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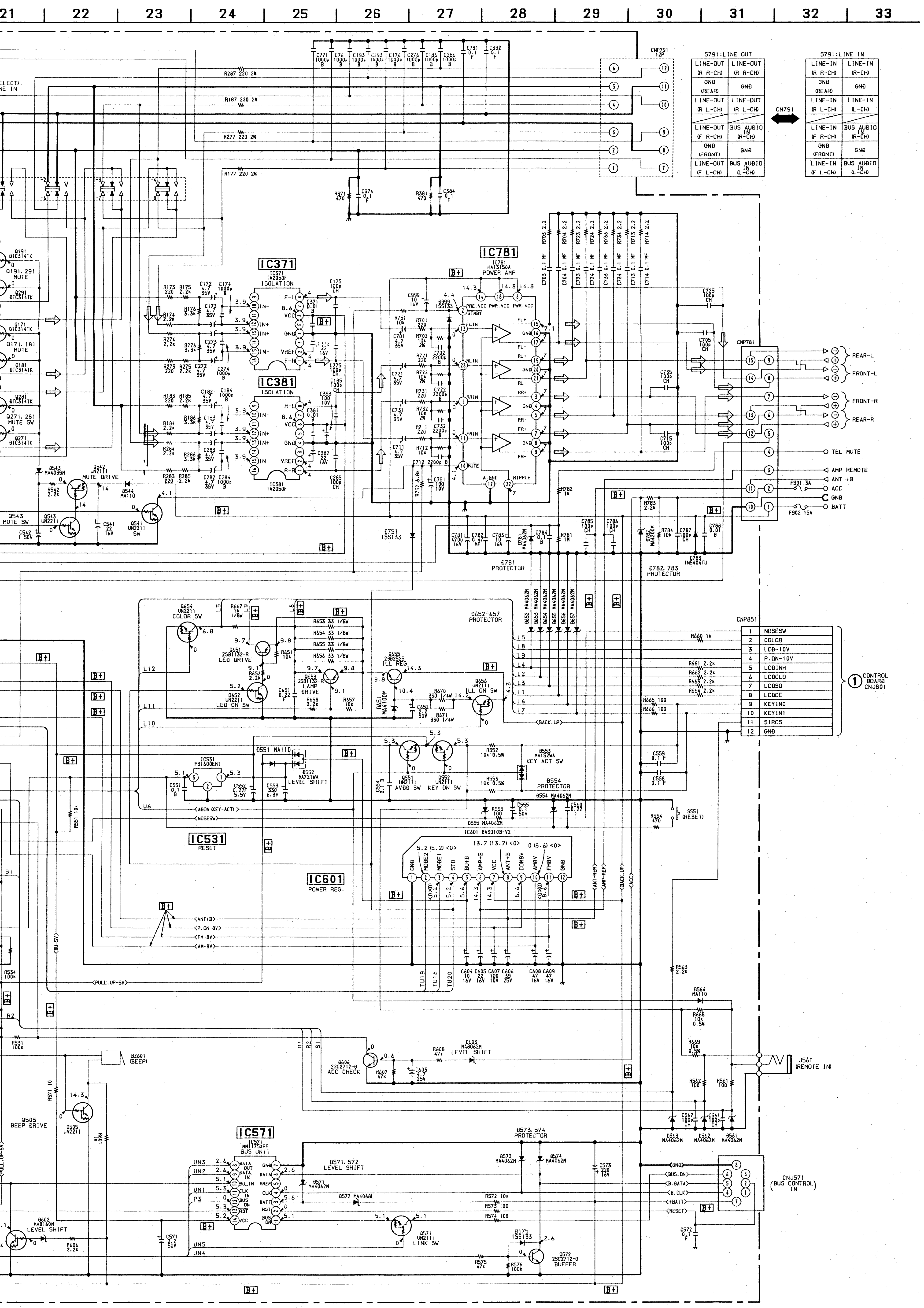
23
24


21
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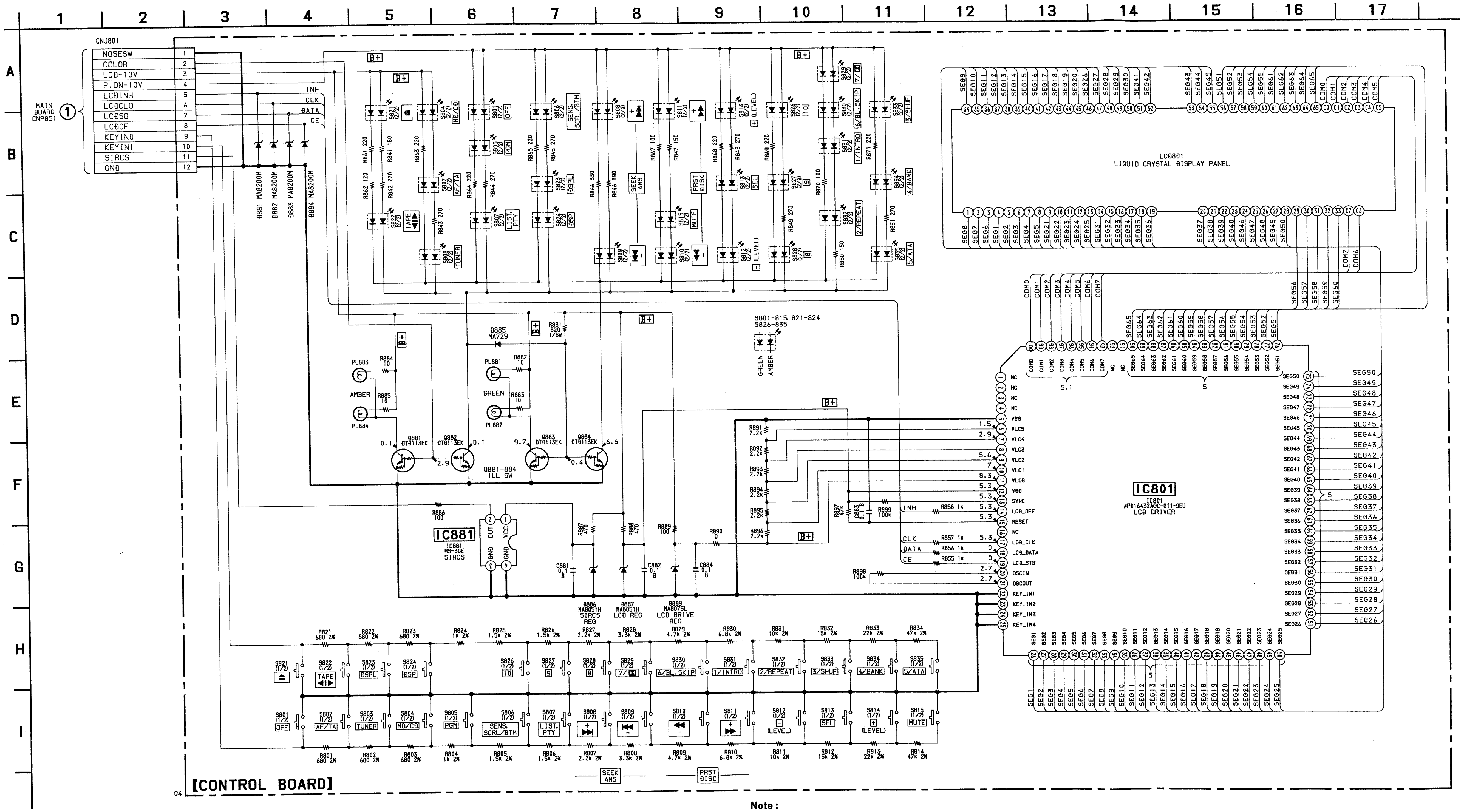
33
CNP791 12P
S791:LINE OUT
S791:LINE IN
CN791
LINE-OUT (R R-CH)
GND (REAR)
LINE-OUT (R L-CH)
LINE-OUT (F R-CH)
GND (FRONT)
LINE-OUT (F L-CH)
BUS AUDIO IN (R-CH)
BUS AUDIO IN (L-CH)
LINE-IN (R R-CH)
LINE-IN (R L-CH)
LINE-IN (F R-CH)
LINE-IN (F L-CH)
LINE-IN (R-CH)
LINE-IN (L-CH)
GND
IC371
IC371 TA2050F ISOLATION
IC381
IC381 TA2050F ISOLATION
IC781
IC781 HA13150A POWER AMP
CNP781
REAR-L
FRONT-L
FRONT-R
REAR-R
TEL MUTE
AMP REMOTE
ANT +B
ACC
GND
BATT
F901 3A
F902 15A
D781 PROTECTOR
D782, 783 PROTECTOR
D783 1N5404TU
D751 1SS133
D652-657 PROTECTOR
CNP851
NOSESW
COLOR
LCD-10V
P.ON-10V
LCDINH
LCDCLO
LCDSO
LCDCE
KEYIN0
KEYIN1
SIRCS
① CONTROL BOARD CNJ801
Q654 UN2211 COLOR SW
Q651 2SB1132-R LED DRIVE
Q652 UN2211 LED-ON SW
Q653 2SB1132-R LAMP DRIVE
Q655 2SD2525 ILL REG
Q656 UN2111 ILL ON SW
D651 MA4100M
IC531 PST600EMT
IC531 RESET
D551 MA110
D552 MA721WA LEVEL SHIFT
Q551 UN2111 AVDD SW
Q552 UN2111 KEY ON SW
D553 MA152WA KEY ACT SW
D554 PROTECTOR
S551 (RESET)
IC601 BA3910B-V2
IC601 POWER REG.
GND
MODE2
MODE1
STB
BU+B
AMP+B
VCC
ANT+B
COMBV
AMBV
FMBV
<ANT+B>
<P.ON-8V>
<FM-8V>
<AM-8V>
<PULL.UP-5V>
<BU-5V>
<BACK.UP>
<ACC>
<ANT-REM>
<AMP-REM>
<ABON (KEY-ACT)>
<NOSESW>
Q542 UN2211 MUTE DRIVE
Q543 UN2211 MUTE SW
Q541 UN2211 SW
D543 MA4039M
D544 MA110
Q191, 291 MUTE
Q171, 181 MUTE
Q271, 281 MUTE SW
DTC314TK
BZ601 (BEEP)
Q505 BEEP DRIVE
Q505 UN2211
Q602 MA8160M LEVEL SHIFT
Q606 2SC2712-G ACC CHECK
D603 MA8062M LEVEL SHIFT
J561 (REMOTE IN)
D561 MA4062M
D562 MA4062M
D563 MA4062M
D564 MA110
IC571
IC571 MM1175XFF BUS UNIT
D571, 572 LEVEL SHIFT
D572 MA4068L
D573, 574 PROTECTOR
D575 1SS133
Q571 UN2111 LINK SW
Q572 2SC2712-G BUFFER
CNJ571 (BUS CONTROL) IN
<GND>
<BUS.ON>
<B.DATA>
<B.CLK>
<+BATT>
<RESET>
B+

6-5. SCHEMATIC DIAGRAM—PANEL SECTION—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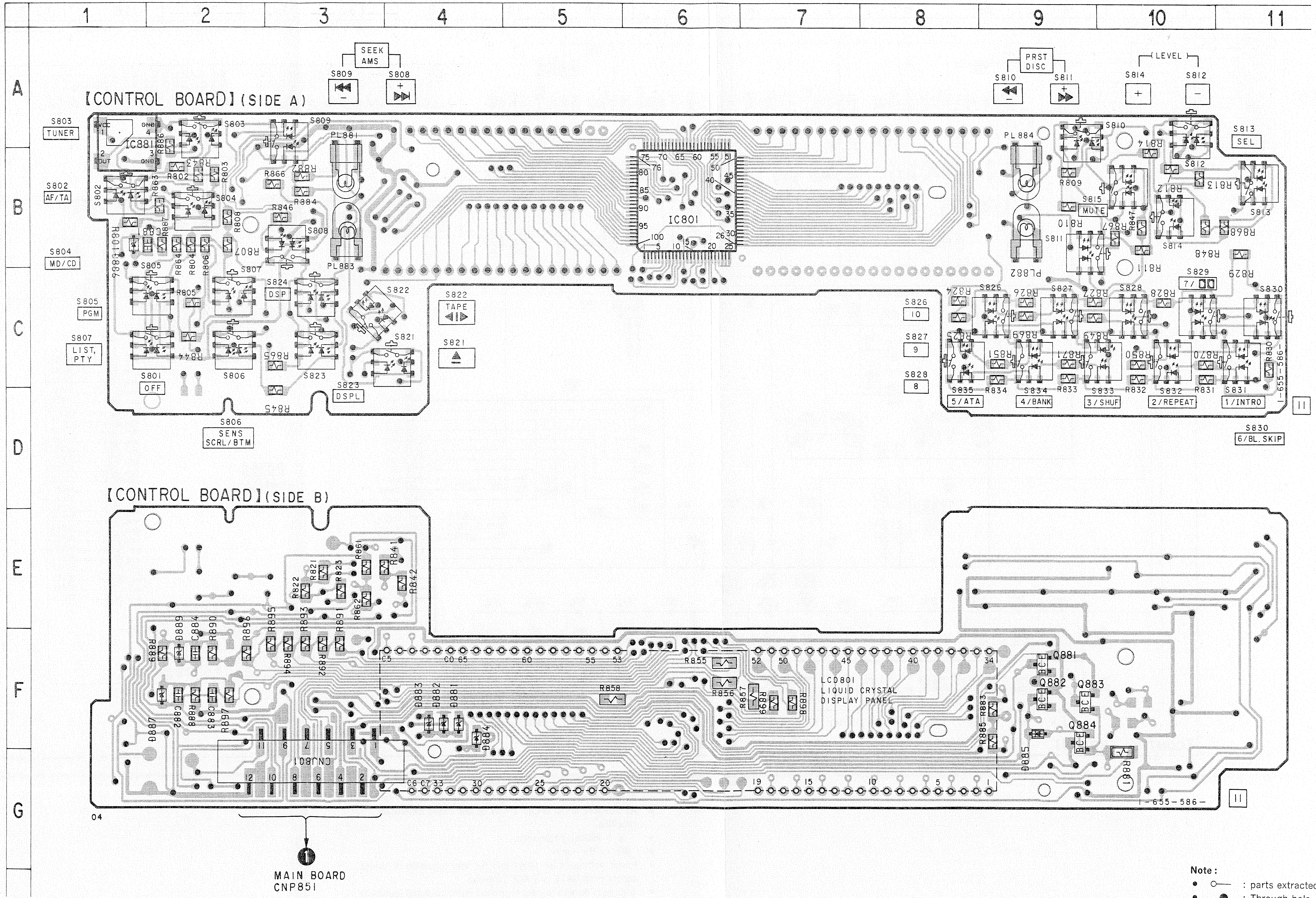
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
CNJ801
NOSESW
COLOR
LCD-10V
P.ON-10V
LCDINH
LCDCLO
LCDSO
LCDCE
KEYIN0
KEYIN1
SIRCS
GND
MAIN BOARD CNP851
①
INH
CLK
DATA
CE
D881 MA8200M
D882 MA8200M
D883 MA8200M
D884 MA8200M
B+
LCD801
LIQUID CRYSTAL DISPLAY PANEL
S801-815, 821-824
S826-835
GREEN
AMBER
D885
MA729
PL883
PL884
PL881
PL882
AMBER
GREEN
Q881 DTD113EK
Q882 DTD113EK
Q883 DTD113EK
Q884 DTD113EK
Q881-884
ILL SW
IC881
IC881
RS-30E
SIRCS
OUT
VCC
GND
D886 MA8051H SIRCS REG
D887 MA8051H LCD REG
D889 MA8075L LCD DRIVE REG
IC801
IC801
μPD16432AGC-011-9EU
LCD DRIVER
VSS
VLC5
VLC4
VLC3
VLC2
VLC1
VLC0
VDD
SYNC
LCD_OFF
RESET
LCD_CLK
LCD_DATA
LCD_STB
OSCIN
OSCOUT
KEY_IN1
KEY_IN2
KEY_IN3
KEY_IN4
COM0
COM1
COM2
COM3
COM4
COM5
COM6
COM7
S821 OPEN/CLOSE
S822 TAPE
S823 DSPL
S824 DSP
S826 10
S827 9
S828 8
S829 7/D
S830 6/BL.SKIP
S831 1/INTRO
S832 2/REPEAT
S833 3/SHUF
S834 4/BANK
S835 5/ATA
S801 OFF
S802 AF/TA
S803 TUNER
S804 MD/CD
S805 PGM
S806 SENS SCRL/BTM
S807 LIST. PTY
S808 +
S809 −
S810
S811
S812 − (LEVEL)
S813 SEL
S814 + (LEVEL)
S815 MUTE
SEEK AMS
PRST DISC
[CONTROL BOARD]

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- B+ : B+ Line
- Power voltage is dc 14.4V and fed with regulated dc power supply from BATT and ACC terminals.
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
- no mark: FM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.

6-6. PRINTED WIRING BOARD—PANEL SECTION—


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
[CONTROL BOARD] (SIDE A)
SEEK AMS
S809
S808
PRST DISC
S810
S811
LEVEL
S814
S812
S803 TUNER
S802 AF/TA
S804 MD/CD
S805 PGM
S807 LIST, PTY
S801 OFF
S806 SENS SCRL/BTM
S824 DSP
S823 DSPL
S822 TAPE
S821
S815 MUTE
S813 SEL
S826 10
S827 9
S828 8
S829 7/
S835 5/ATA
S834 4/BANK
S833 3/SHUF
S832 2/REPEAT
S831 1/INTRO
S830 6/BL.SKIP
IC801
IC881
PL881
PL882
PL883
PL884
1-655-586-
11
[CONTROL BOARD] (SIDE B)
LCD801 LIQUID CRYSTAL DISPLAY PANEL
CNJ801
Q881
Q882
Q883
Q884
D881
D882
D883
D884
D885
D887
D889
1-655-586-
11
04
1
MAIN BOARD CNP851

• Semiconductor Location

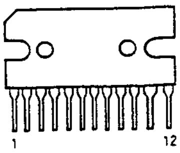
Ref. No.	Location
D881	F-4
D882	F-4
D883	F-4
D884	F-4
D885	F-9
D886	B-1
D887	F-2
D889	F-2
IC801	B-6
IC881	B-1
Q881	F-9
Q882	F-9
Q883	F-9
Q884	F-9

Note :

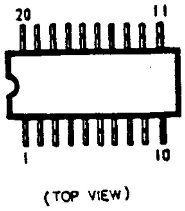
- ○— : parts extracted from the component side.
- ● : Through hole.
- ▨ : Pattern on the side which is seen.
(The other layer's patterns are not indicated.)

6-7. SEMICONDUCTOR LEAD LAYOUTS

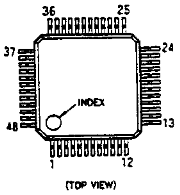
BA3910B-V2



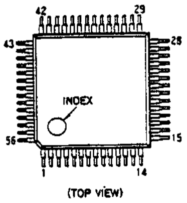
CXA1846M-T6
LC7216M
TDA7330BD-013TR


20
11
1
10
(TOP VIEW)

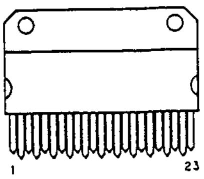
CXA1946Q


36
25
37
24
INDEX
48
13
1
12
(TOP VIEW)

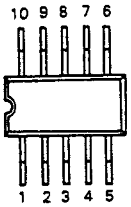
HA12174


42
29
43
28
INDEX
56
15
1
14
(TOP VIEW)

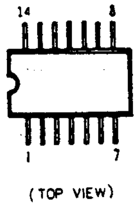
HA13150A



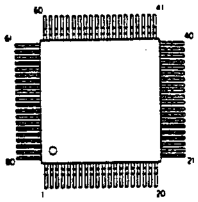
LB1638M


10 9 8 7 6
1 2 3 4 5

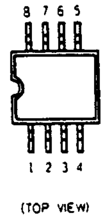
MM1175XFF


14
8
1
7
(TOP VIEW)

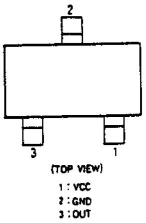
MN1883220SZG
μPD78056GC-060 -3B9


60
41
61
40
80
21
1
20

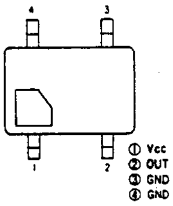
NJM4558E-D (TE2)
NJM4580E-D
TC4W66F


8 7 6 5
1 2 3 4
(TOP VIEW)

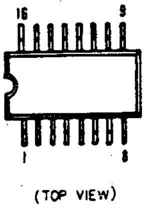
PST600EMT-T1


2
3
1
(TOP VIEW)
1 : VCC
2 : GND
3 : OUT

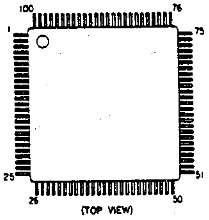
RS-30E-T


4
3
1
2
① Vcc
② OUT
③ GND
④ GND

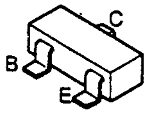
TA2050F (EL)


16
9
1
8
(TOP VIEW)

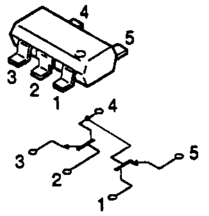
μPD16432AGC-011 -9EU


100
76
1
75
25
51
26
50
(TOP VIEW)

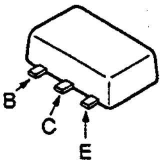
DTC314TKH04
DTD113EK
UN2111
UN2211
UN2217
2SC2712-YG



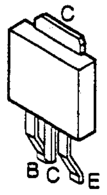
XN1A312-TX


4
5
3
2
1
4
3
5
2
1

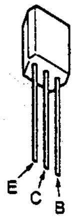
2SB1115A-YQ
2SD1615A-GP



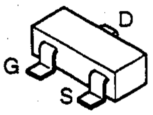
2SD1802FAST-TL



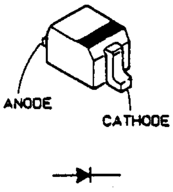
2SD2525



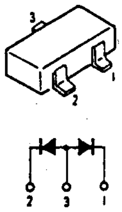
2SK1657-T1B



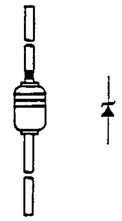
MA110
MA8051-H
MA8075-L
MA8160-M
MA8200-TX


ANODE
CATHODE

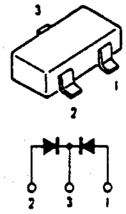
MA152WA
MA721WA-TX



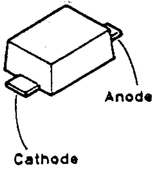
MA4039-M (QZ)
MA4062-M (QZ)
MA4068-L (QZ)
MA4091-H (QZ)
MA4100-M (QZ)
MA4200-M (QZ)



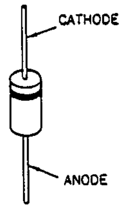
MA721WK-(TX)
1SS184



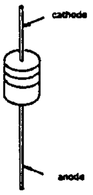
MA729
MA8056-L
MA8062-M
MA8091-M


Anode
Cathode

1N5404TU

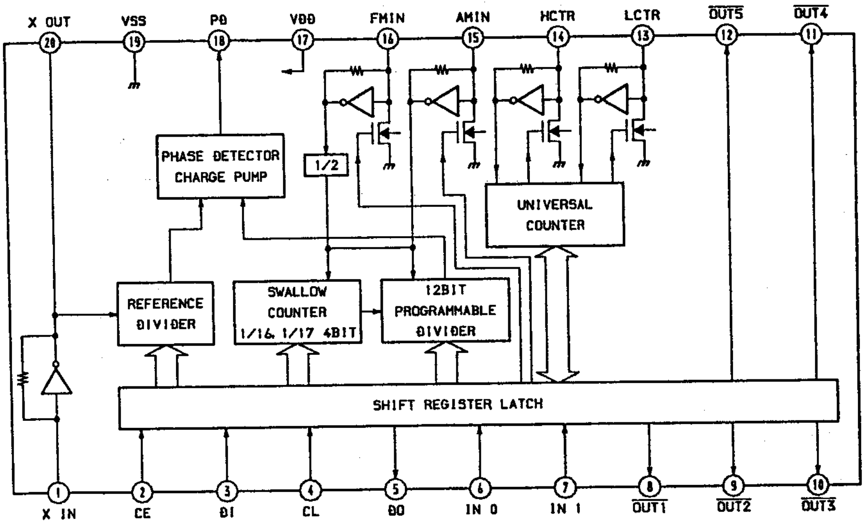

CATHODE
ANODE

1SS133T-91S

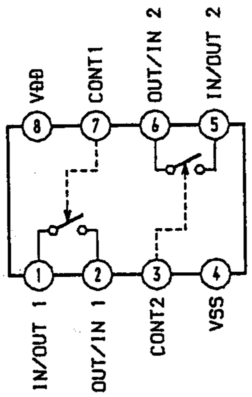

cathode
anode

• IC Block Diagrams

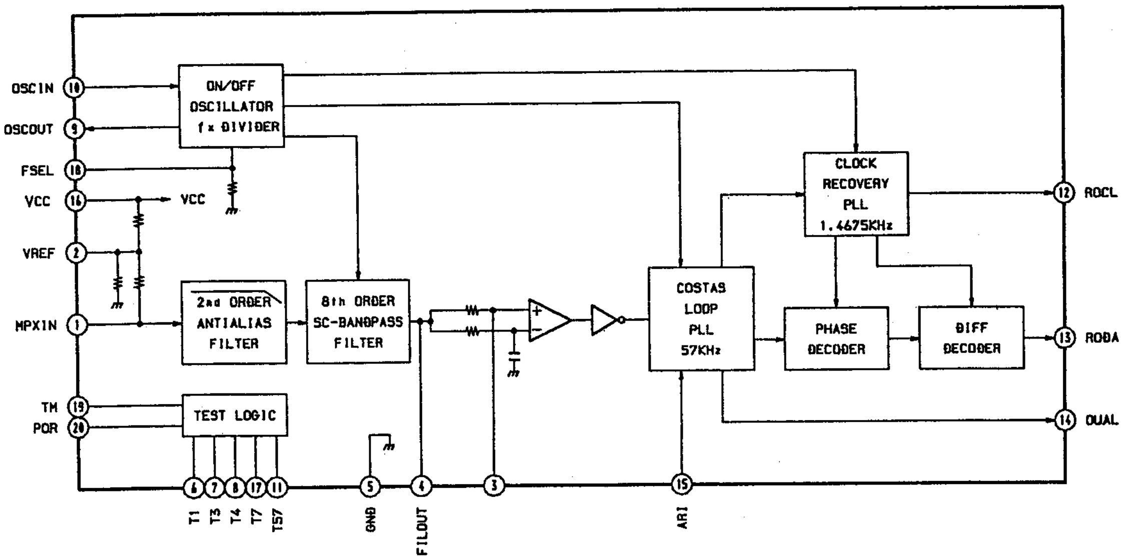
IC11 LC7216M


X OUT
VSS
PD
VDD
FMIN
AMIN
HCTR
LCTR
OUT5
OUT4
20
19
18
17
16
15
14
13
12
11
PHASE DETECTOR
CHARGE PUMP
1/2
UNIVERSAL
COUNTER
REFERENCE
DIVIDER
SWALLOW
COUNTER
1/16, 1/17 4BIT
12BIT
PROGRAMMABLE
DIVIDER
SHIFT REGISTER LATCH
1
2
3
4
5
6
7
8
9
10
X IN
CE
DI
CL
DO
IN 0
IN 1
OUT1
OUT2
OUT3

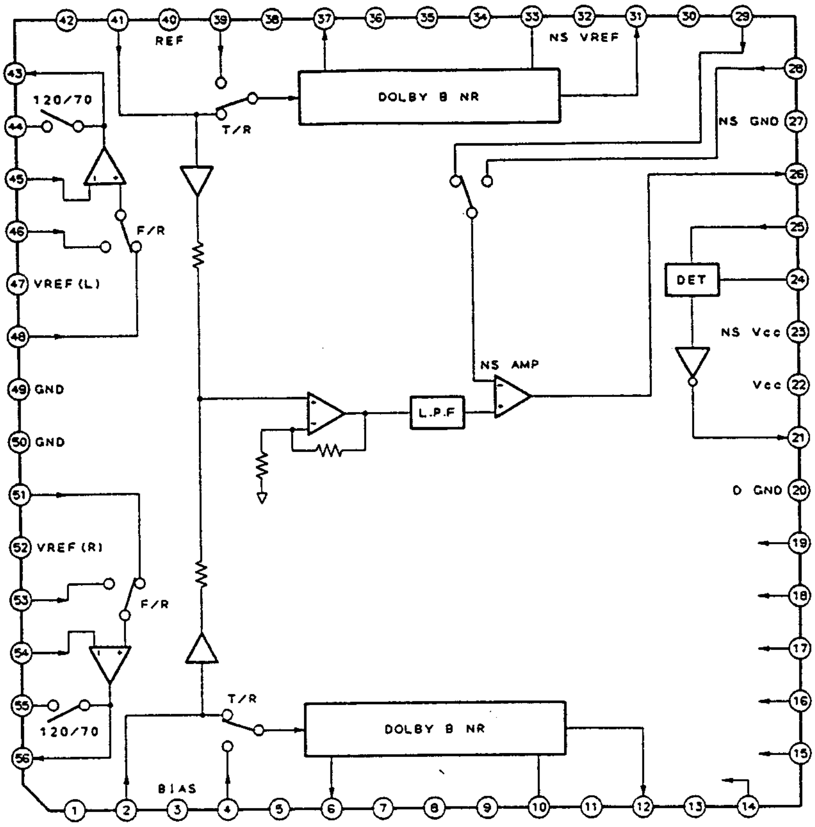
IC21 TC4W66F


VDD
CONT1
OUT/IN 2
IN/OUT 2
8
7
6
5
1
2
3
4
IN/OUT 1
OUT/IN 1
CONT2
VSS

IC51 TDA7330BD

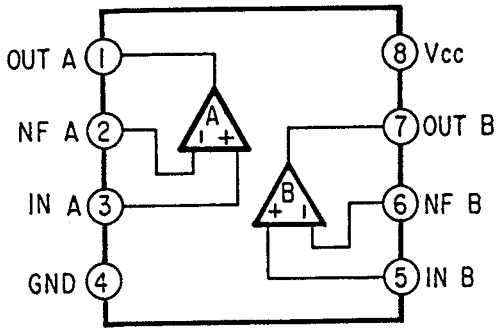

OSCIN 10
OSCOUT 9
FSEL 18
VCC 16
VREF 2
MPXIN 1
TM 19
POR 20
ON/OFF
OSCILLATOR
f x DIVIDER
VCC
2nd ORDER
ANTIALIAS
FILTER
8th ORDER
SC-BANDPASS
FILTER
TEST LOGIC
COSTAS
LOOP
PLL
57KHz
CLOCK
RECOVERY
PLL
1.4675KHz
PHASE
DECODER
DIFF
DECODER
12 RDCL
13 RDDA
14 QUAL
6
7
8
17
11
T1
T3
T4
T7
T57
5
GND
4
FILOUT
3
15
ARI

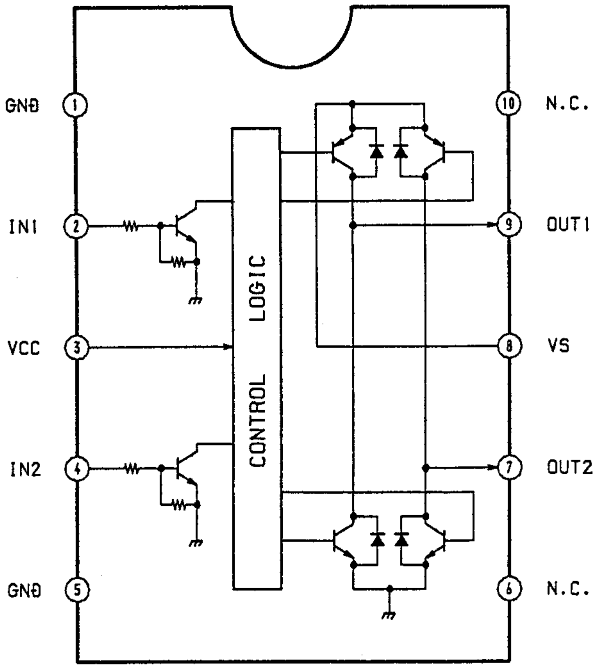
IC301 HA12174


40 REF
NS VREF
DOLBY B NR
T/R
120/70
F/R
47 VREF (L)
49 GND
50 GND
52 VREF (R)
F/R
120/70
T/R
DOLBY B NR
3 BIAS
27 NS GND
DET
23 NS Vcc
22 Vcc
20 D GND
NS AMP
L.P.F

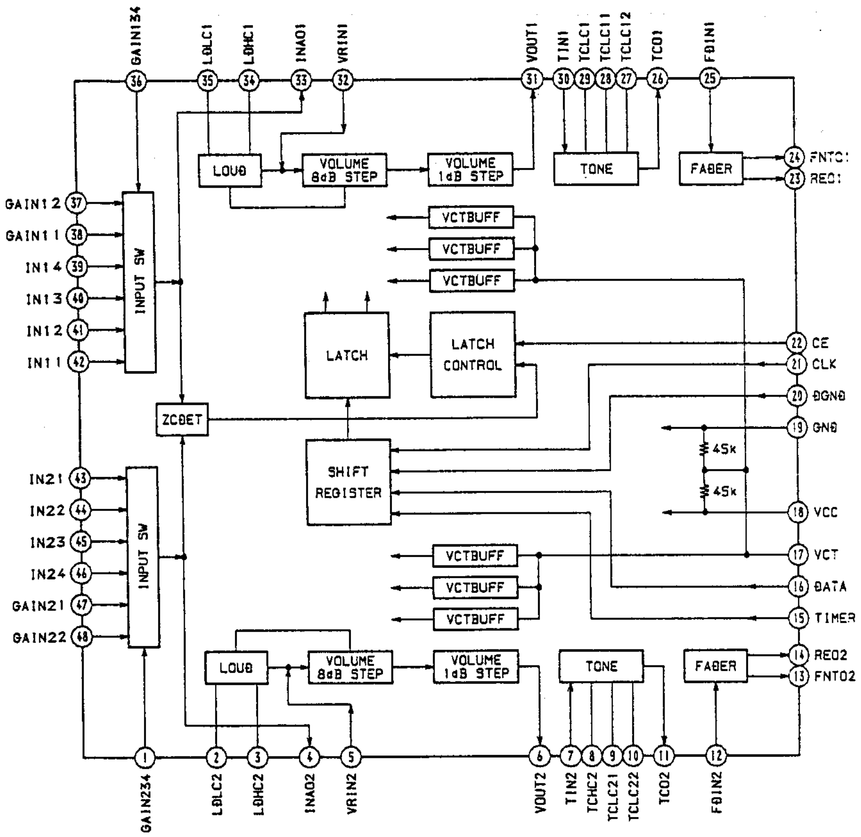
IC331 LB1638M

IC321 NJM4558E-D
IC352 NJM4580E-D


OUT A 1
NF A 2
IN A 3
GND 4
8 Vcc
7 OUT B
6 NF B
5 IN B
A
B

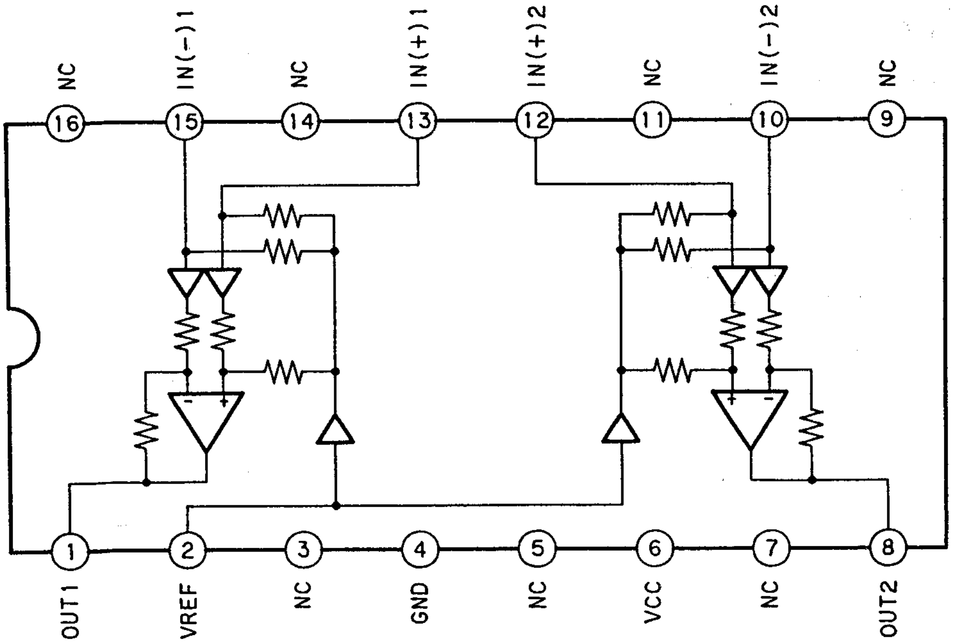

GND 1
IN1 2
VCC 3
IN2 4
GND 5
10 N.C.
9 OUT1
8 VS
7 OUT2
6 N.C.
CONTROL LOGIC

IC351 CXA1946Q



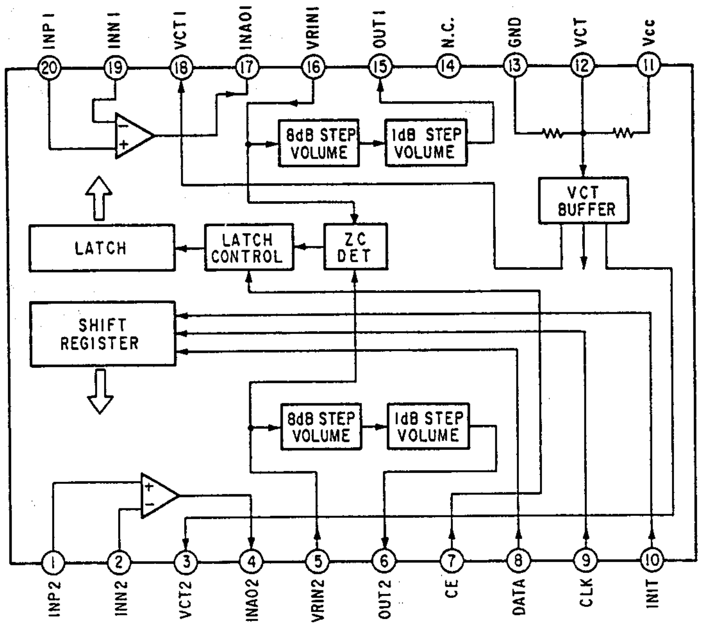
GAIN134 36
LDLC1 35
LDHC1 34
INAO1 33
VRIN1 32
VOUT1 31
TIN1 30
TCLC1 29
TCLC11 28
TCLC12 27
TCO1 26
FDIN1 25
LOUD
VOLUME 8dB STEP
VOLUME 1dB STEP
TONE
FADER
24 FNTO1
23 REO1
GAIN12 37
GAIN11 38
IN14 39
IN13 40
IN12 41
IN11 42
INPUT SW
VCTBUFF
VCTBUFF
VCTBUFF
LATCH
LATCH CONTROL
22 CE
21 CLK
20 DGND
19 GND
ZCDET
45k
45k
SHIFT REGISTER
18 VCC
17 VCT
16 DATA
15 TIMER
IN21 43
IN22 44
IN23 45
IN24 46
GAIN21 47
GAIN22 48
INPUT SW
VCTBUFF
VCTBUFF
VCTBUFF
LOUD
VOLUME 8dB STEP
VOLUME 1dB STEP
TONE
FADER
14 REO2
13 FNTO2
1 GAIN234
2 LDLC2
3 LDHC2
4 INAO2
5 VRIN2
6 VOUT2
7 TIN2
8 TCHC2
9 TCLC21
10 TCLC22
11 TCO2
12 FDIN2

IC371, 381 TA2050F

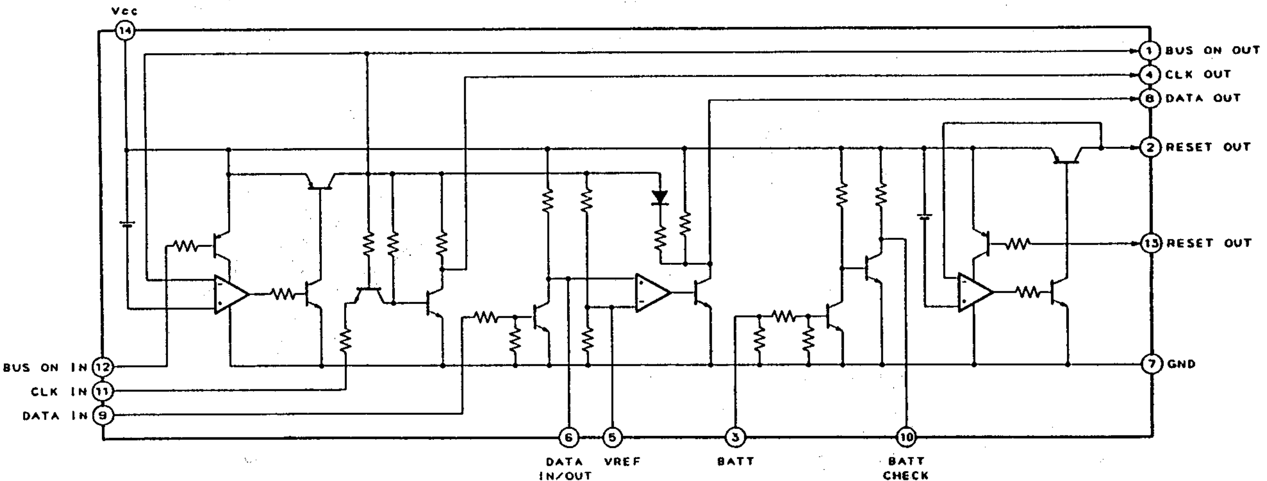


NC 16
IN(−)1 15
NC 14
IN(+)1 13
IN(+)2 12
NC 11
IN(−)2 10
NC 9
−
+
+
−
1 OUT1
2 VREF
3 NC
4 GND
5 NC
6 VCC
7 NC
8 OUT2

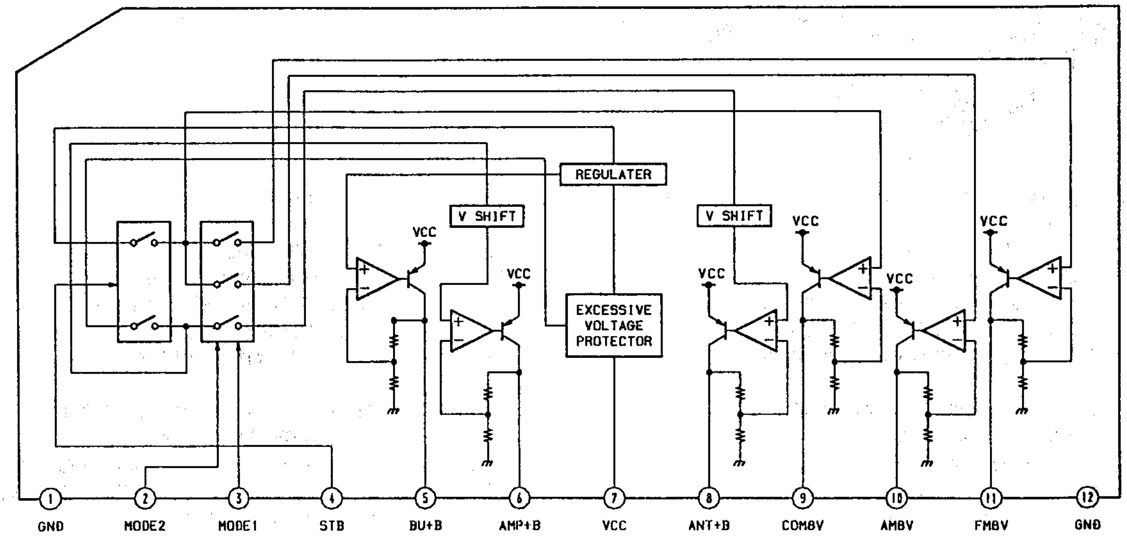
IC391 CXA1846M


INP1
INN1
VCT1
INAO1
VRIN1
OUT1
N.C.
GND
VCT
Vcc
20
19
18
17
16
15
14
13
12
11
8dB STEP VOLUME
1dB STEP VOLUME
VCT BUFFER
LATCH
LATCH CONTROL
ZC DET
SHIFT REGISTER
8dB STEP VOLUME
1dB STEP VOLUME
1
2
3
4
5
6
7
8
9
10
INP2
INN2
VCT2
INAO2
VRIN2
OUT2
CE
DATA
CLK
INIT

IC571 MM1175XFF


Vcc
14
1 BUS ON OUT
4 CLK OUT
8 DATA OUT
2 RESET OUT
13 RESET OUT
7 GND
BUS ON IN 12
CLK IN 11
DATA IN 9
6 DATA IN/OUT
5 VREF
3 BATT
10 BATT CHECK

IC601 BA3910B-V2

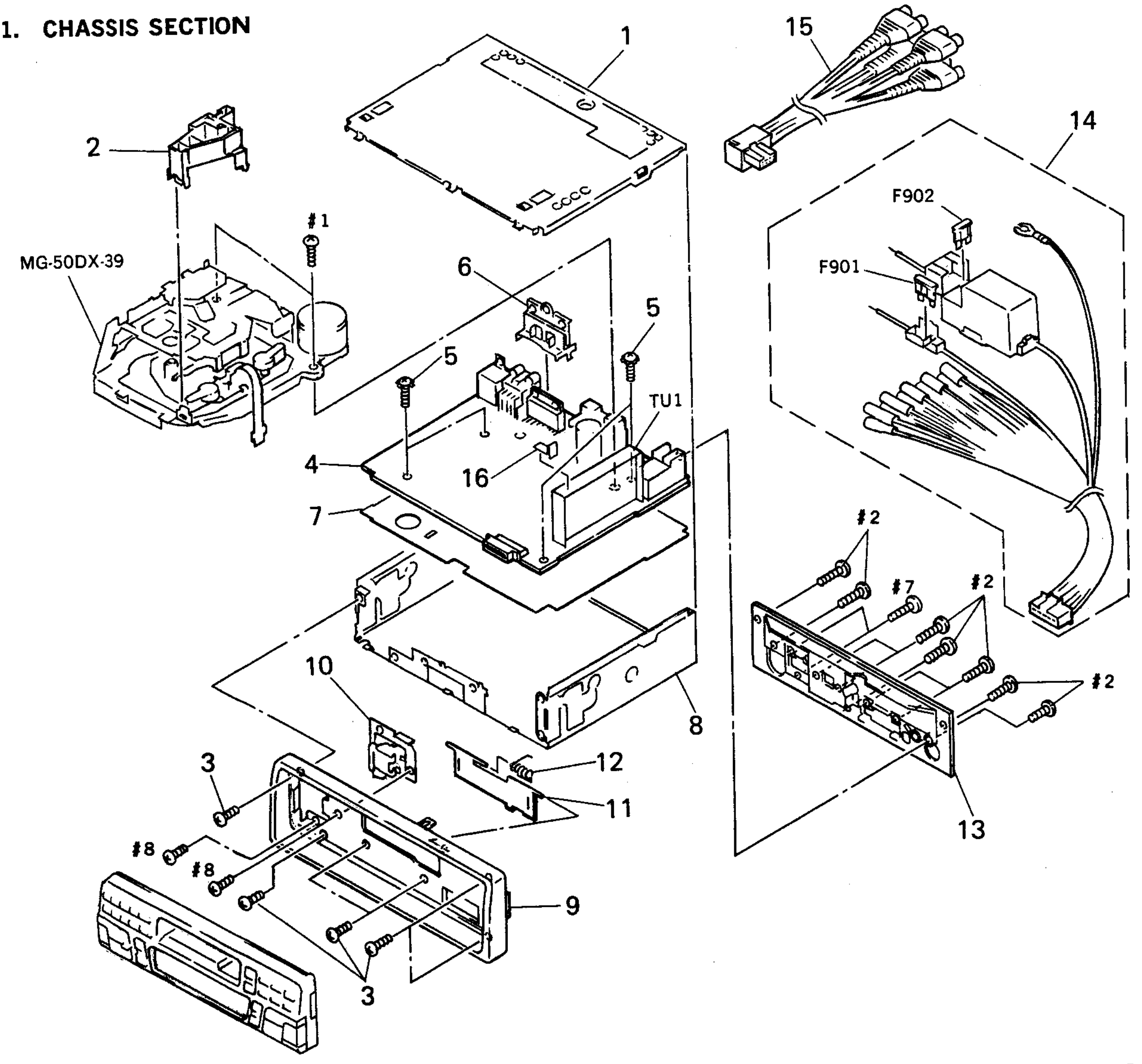

REGULATER
V SHIFT
V SHIFT
VCC
VCC
VCC
VCC
VCC
VCC
VCC
EXCESSIVE VOLTAGE PROTECTOR
1
2
3
4
5
6
7
8
9
10
11
12
GND
MODE2
MODE1
STB
BU+B
AMP+B
VCC
ANT+B
COM8V
AM8V
FM8V
GND

SECTION 7
EXPLODED VIEWS

NOTE:

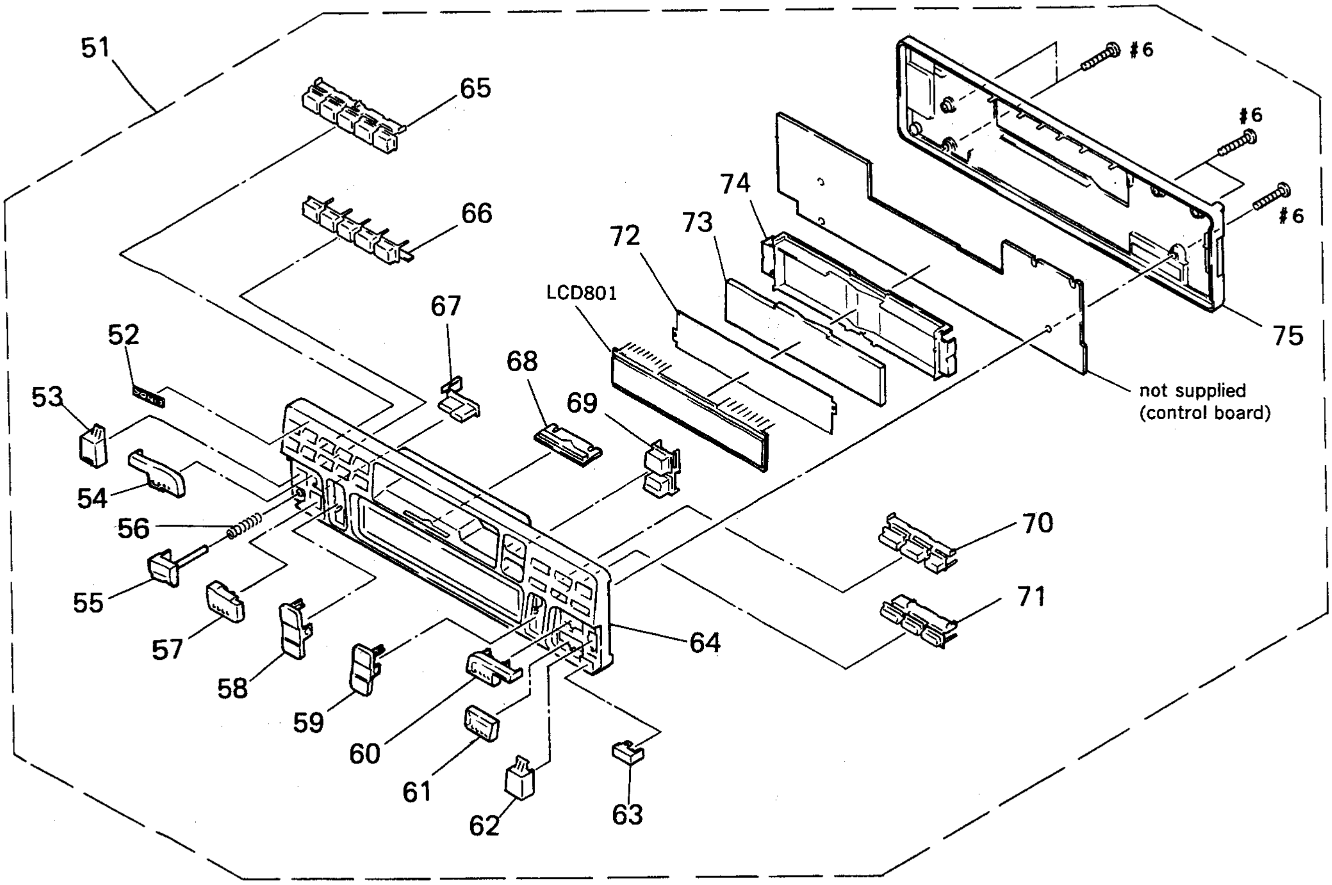
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE)... (RED)
  ↑ Parts Color ↑ Cabinet's Color
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  G : German model

7-1. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
* 1	X-3369-736-1	COVER ASSY	
2	3-916-872-01	GUIDE	
3	3-907-995-01	SCREW (2.6X8) (BZN), +PTT	
* 4	A-3298-546-A	MAIN BOARD, COMPLETE (AEP, UK)	
* 4	A-3298-548-A	MAIN BOARD, COMPLETE (G)	
5	3-915-923-01	SCREW, GROUND POINT	
* 6	3-920-605-01	HEAT SINK (IC)	
* 7	3-920-609-01	INSULATOR	
* 8	X-3369-735-1	CHASSIS ASSY	
9	3-920-583-01	PANEL, SUB	
10	X-3367-636-1	LOCK ASSY	
11	3-922-165-11	DOOR, CASSETTE (G)	
11	3-922-165-21	DOOR, CASSETTE (AEP, UK)	
12	3-913-076-01	SPRING (C DOOR), TORSION	
* 13	3-920-604-01	HEAT SINK	
14	1-765-081-11	CORD (WITH CONNECTOR)	
15	1-769-448-11	CORD (WITH CONNECTOR) (AUDIO)	
* 16	3-355-209-01	PLATE (B), GROUND	
F901	1-533-326-11	FUSE (BLADE TYPE) (AUTO FUSE) (3A)	
F902	1-533-331-11	FUSE (BLADE TYPE) (AUTO FUSE) (15A)	
TU1	A-3282-003-A	TUNER UNIT (TUX-001A)	

7-2. FRONT PANEL SECTION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LCD801
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not supplied
(control board)
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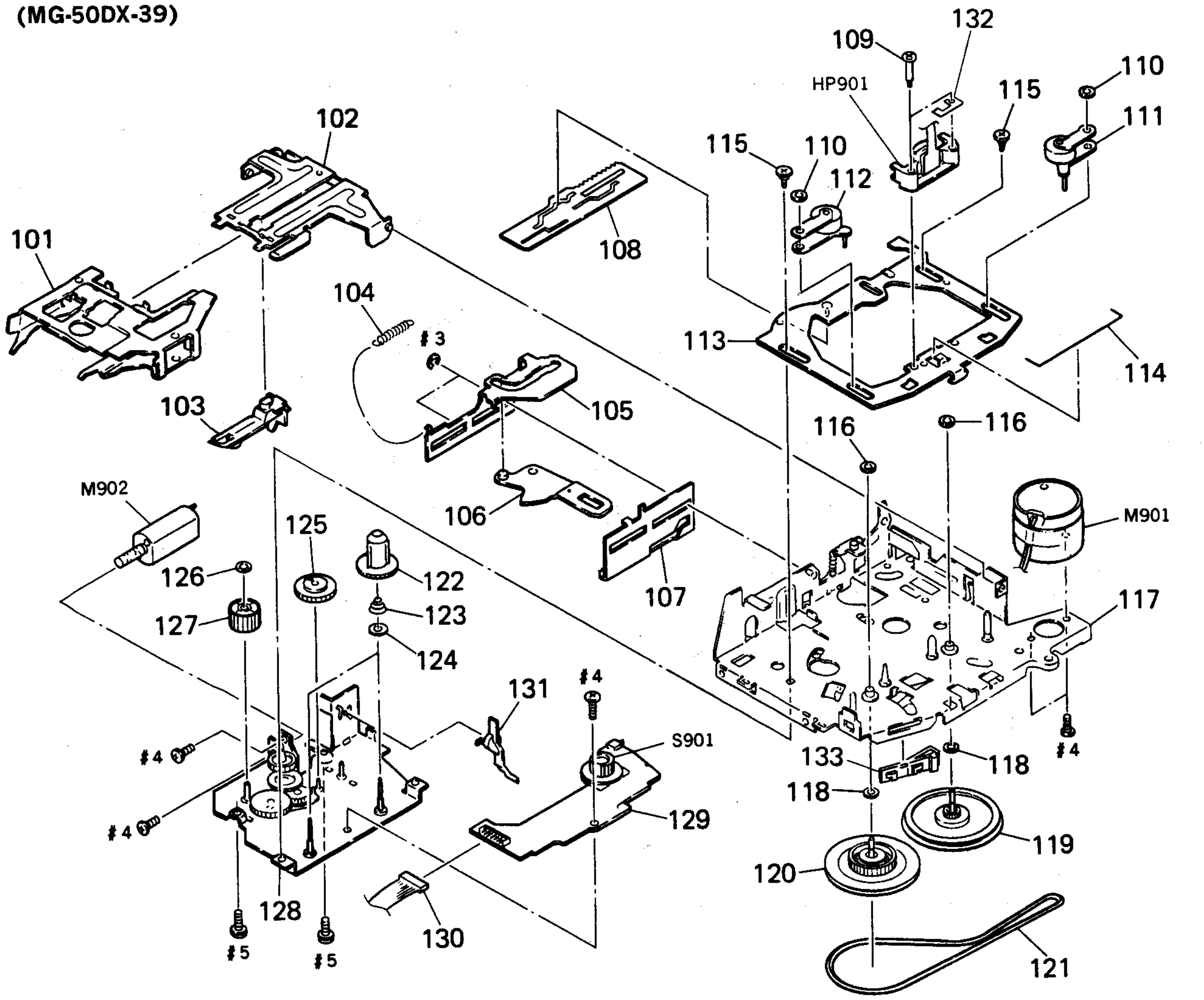
Ref. No.	Part No.	Description	Remark
* 51	A-3291-271-A	PANEL ASSY, FRONT	
52	3-904-194-01	EMBLEM (NO. 2.5), SONY	
53	3-920-594-01	BUTTON (SEL)	
54	3-920-592-01	BUTTON (+)	
55	3-920-596-01	BUTTON (RELEASE)	
56	3-920-608-01	SPRING (RELEASE)	
57	3-920-593-01	BUTTON (-)	
58	3-920-597-01	BUTTON (P/D)	
59	3-920-598-01	BUTTON (S/A)	
60	3-920-587-01	BUTTON (MD/CD)	
61	3-920-588-01	BUTTON (TUNER)	
62	3-920-589-11	BUTTON (TV)	
63	3-920-600-01	FILTER (RAY CATCHER)	

Ref. No.	Part No.	Description	Remark
64	X-3370-275-1	PANEL SUB ASSY	
65	3-920-585-01	BUTTON (PRE 1-5)	
66	3-920-586-01	BUTTON (PRE 6-10)	
67	3-920-595-11	BUTTON (MUTE)	
68	3-920-607-01	PLATE (C), LIGHT GUIDE	
69	3-920-599-01	BUTTON (EJECT)	
70	3-920-590-01	BUTTON (D.S.O)	
71	3-920-591-01	BUTTON (D.L.P)	
* 72	3-920-602-01	SHEET (REFLECTOR)	
* 73	3-920-610-01	PLATE (LCD), LIGHT GUIDE	
* 74	3-920-601-01	HOLDER (LCD)	
75	3-920-582-11	PANEL, FRONT BACK	
LCD801	1-810-774-11	DISPLAY PANEL, LIQUID CRYSTAL	

7-3. MECHANISM DECK SECTION
(MG-50DX-39)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HP901
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#3
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M902
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M901
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#4
S901
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#4
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#5
#5
121

Ref. No.	Part No.	Description	Remark
101	3-912-881-01	HOUSING, CASSETTE	
* 102	3-912-882-01	HANGER, HOUSING	
103	3-912-884-01	CATCHER	
104	3-912-885-01	SPRING (LOADING LEVER), TENSION	
* 105	3-912-892-01	LEVER (B), LOADING	
* 106	3-912-883-01	ARM, SUCTION	
* 107	3-922-941-01	LEVER (A2), LOADING	
* 108	3-912-876-01	LEVER, MODE	
109	3-912-893-01	SCREW, HEAD FITTING	
110	3-579-788-01	WASHER, STOPPER	
111	X-3368-266-1	PINCH LEVER (F) ASSY	
112	X-3368-267-1	PINCH LEVER (R) ASSY	
* 113	X-3368-268-1	BASE ASSY, HEAD	
114	3-912-879-01	SPRING, PINCH PRESS	
115	3-912-897-01	SCREW (HB), STEP	
116	3-364-151-01	WASHER	
117	X-3368-984-1	CHASSIS (SV) ASSY (B), MECHANICAL	
118	3-701-437-21	WASHER	
119	3-913-825-01	FLYWHEEL (FZ)	

Ref. No.	Part No.	Description	Remark
120	X-3369-124-1	CLUTCH (S) ASSY, FR	
121	3-912-896-01	BELT	
122	X-3368-843-1	GEAR (SV) ASSY, REEL	
123	3-917-222-01	SPRING (B-T), COIL	
124	3-917-324-01	WASHER (B-T)	
125	3-912-888-01	GEAR (LOADING E)	
126	3-321-813-01	WASHER, COTTER POLYETHYLENE	
127	3-912-889-01	GEAR (LOADING F)	
128	X-3368-842-1	BRACKET (SV) ASSY, REEL	
129	1-589-604-21	REEL SENSOR BOARD	
130	1-765-460-12	CORD (WITH CONNECTOR)	
131	3-916-358-01	LEVER (TAPE IN 2)	
* 132	3-917-258-01	PLATE, GROUND	
133	3-919-553-01	GUIDE (BELT)	
HP901	1-500-200-11	HEAD, MAGNETIC (PLAYBACK)	
M901	X-3368-684-1	MOTOR ASSY, MAIN (CAPSTAN/REEL)	
M902	X-3368-685-1	MOTOR ASSY, SUB (LOADING/TAPE OPERATION)	
S901	1-692-885-11	SWITCH, ROTARY SLIDE (TAPE OPERATION)	

SECTION 8
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

- Abbreviation
  G : German model

CONTROL BOARD
****

< DIODE >

Ref. No.	Part No.	Description	Remark
D881	8-719-017-98	DIODE MA8200-TX	
D882	8-719-017-98	DIODE MA8200-TX	
D883	8-719-017-98	DIODE MA8200-TX	
D884	8-719-017-98	DIODE MA8200-TX	
D885	8-719-420-51	DIODE MA729	
D886	8-719-422-43	DIODE MA8051-H	
D887	8-719-422-43	DIODE MA8051-H	
D889	8-719-422-73	DIODE MA8075-L	

< IC >

Ref. No.	Part No.	Description	Remark
IC801	8-759-331-68	IC uPD16432AGC-011-9EU	
IC881	8-749-925-07	IC RS-30E-T	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q881	8-729-904-66	TRANSISTOR DTD113EK	
Q882	8-729-904-66	TRANSISTOR DTD113EK	
Q883	8-729-904-66	TRANSISTOR DTD113EK	
Q884	8-729-904-66	TRANSISTOR DTD113EK	

****

Ref. No.	Part No.	Description	Remark
*	A-3298-546-A	MAIN BOARD, COMPLETE (AEP,UK)	
*	A-3298-548-A	MAIN BOARD, COMPLETE (G)	

****

< DIODE >

Ref. No.	Part No.	Description	Remark
D3	8-719-040-04	DIODE MA721WK-(TX)	
D4	8-719-422-49	DIODE MA8056-L	
D21	8-719-422-97	DIODE MA8091-M	
D301	8-719-404-46	DIODE MA110	
D321	8-719-422-49	DIODE MA8056-L	
D331	8-719-034-63	DIODE MA4091-H(QZ)	
D332	8-719-050-86	DIODE 1SS133T-91S	
D501	8-719-400-20	DIODE MA152WA	
D502	8-719-404-46	DIODE MA110	
D503	8-719-801-78	DIODE 1SS184	
D504	8-719-801-78	DIODE 1SS184	
D543	8-719-034-22	DIODE MA4039-M(QZ)	
D544	8-719-404-46	DIODE MA110	
D551	8-719-404-46	DIODE MA110	
D552	8-719-041-79	DIODE MA721WA-TX	
D553	8-719-400-20	DIODE MA152WA	
D554	8-719-034-46	DIODE MA4062-M(QZ)	
D555	8-719-034-46	DIODE MA4062-M(QZ)	
D561	8-719-034-46	DIODE MA4062-M(QZ)	
D562	8-719-034-46	DIODE MA4062-M(QZ)	
D563	8-719-034-46	DIODE MA4062-M(QZ)	
D564	8-719-404-46	DIODE MA110	
D571	8-719-034-46	DIODE MA4062-M(QZ)	
D572	8-719-034-49	DIODE MA4068-L(QZ)	
D573	8-719-034-46	DIODE MA4062-M(QZ)	
D574	8-719-034-46	DIODE MA4062-M(QZ)	
D575	8-719-050-86	DIODE 1SS133T-91S	
D581	8-719-404-46	DIODE MA110	
D602	8-719-022-90	DIODE MA8160-M	
D603	8-719-422-64	DIODE MA8062-M	
D651	8-719-034-66	DIODE MA4100-M(QZ)	
D652	8-719-034-46	DIODE MA4062-M(QZ)	
D653	8-719-034-46	DIODE MA4062-M(QZ)	
D654	8-719-034-46	DIODE MA4062-M(QZ)	
D655	8-719-034-46	DIODE MA4062-M(QZ)	
D656	8-719-034-46	DIODE MA4062-M(QZ)	
D657	8-719-034-46	DIODE MA4062-M(QZ)	
D751	8-719-050-86	DIODE 1SS133T-91S	
D781	8-719-034-46	DIODE MA4062-M(QZ)	
D782	8-719-034-98	DIODE MA4200-M(QZ)	
D783	8-719-049-38	DIODE 1N5404TU	
D991	8-719-404-46	DIODE MA110	

< IC >

Ref. No.	Part No.	Description	Remark
IC11	8-759-823-81	IC LC7216M	
IC21	8-759-242-66	IC TC4W66F	
IC51	8-759-163-63	IC TDA7330BD-013TR	
IC301	8-759-160-99	IC HA12174	

MAIN

Ref. No.	Part No.	Description	Remark
IC321	8-759-331-72	IC NJM4558E-D(TE2)	
IC331	8-759-823-87	IC LB1638M	
IC351	8-752-071-19	IC CXA1946Q	
IC352	8-759-711-85	IC NJM4580E-D	
IC371	8-759-262-37	IC TA2050F(EL)	
IC381	8-759-262-37	IC TA2050F(EL)	
IC391	8-752-068-73	IC CXA1846M-T6	
IC501	8-759-333-09	IC uPD78056GC-060-3B9	
IC531	8-759-167-83	IC PST600EMT-T1	
IC551	8-759-332-47	IC MN1883220SZG	
IC571	8-759-096-16	IC MM1175XFF	
IC601	8-759-182-75	IC BA3910B-V2	
IC781	8-759-260-77	IC HA13150A	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q1	8-729-421-22	TRANSISTOR UN2211	
Q2	8-729-424-08	TRANSISTOR UN2111	
Q3	8-729-106-68	TRANSISTOR 2SD1615A-GP	
Q5	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q21	8-729-021-94	TRANSISTOR 2SK1657-T1B	
Q22	8-729-106-68	TRANSISTOR 2SD1615A-GP	
Q23	8-729-421-22	TRANSISTOR UN2211	
Q52	8-729-020-67	TRANSISTOR XN1A312-TX	
Q61	8-729-424-70	TRANSISTOR UN2217	
Q71	8-729-424-70	TRANSISTOR UN2217	
Q81	8-729-424-70	TRANSISTOR UN2217	
Q171	8-729-920-21	TRANSISTOR DTC314TKH04	
Q181	8-729-920-21	TRANSISTOR DTC314TKH04	
Q191	8-729-920-21	TRANSISTOR DTC314TKH04	
Q271	8-729-920-21	TRANSISTOR DTC314TKH04	
Q281	8-729-920-21	TRANSISTOR DTC314TKH04	
Q291	8-729-920-21	TRANSISTOR DTC314TKH04	
Q321	8-729-020-67	TRANSISTOR XN1A312-TX	
Q331	8-729-015-11	TRANSISTOR 2SD1802FAST-TL	
Q332	8-729-424-08	TRANSISTOR UN2111	
Q334	8-729-106-60	TRANSISTOR 2SB1115A-YQ	
Q501	8-729-421-22	TRANSISTOR UN2211	
Q502	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q503	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q504	8-729-421-22	TRANSISTOR UN2211	
Q505	8-729-421-22	TRANSISTOR UN2211	
Q541	8-729-421-22	TRANSISTOR UN2211	
Q542	8-729-424-08	TRANSISTOR UN2111	
Q543	8-729-421-22	TRANSISTOR UN2211	
Q551	8-729-424-08	TRANSISTOR UN2111	
Q552	8-729-424-08	TRANSISTOR UN2111	
Q571	8-729-424-08	TRANSISTOR UN2111	
Q572	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q603	8-729-421-22	TRANSISTOR UN2211	
Q606	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q651	8-729-106-60	TRANSISTOR 2SB1115A-YQ	
Q652	8-729-421-22	TRANSISTOR UN2211	
Q653	8-729-106-60	TRANSISTOR 2SB1115A-YQ	
Q654	8-729-421-22	TRANSISTOR UN2211	
Q655	8-729-030-18	TRANSISTOR 2SD2525	
Q656	8-729-424-08	TRANSISTOR UN2111	

****

MISCELLANEOUS

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Ref. No.	Part No.	Description	Remark
14	1-765-081-11	CORD (WITH CONNECTOR)	
15	1-769-448-11	CORD (WITH CONNECTOR) (AUDIO)	
130	1-765-460-12	CORD (WITH CONNECTOR)	
F901	1-533-326-11	FUSE (BLADE TYPE) (AUTO FUSE) (3A)	
F902	1-533-331-11	FUSE (BLADE TYPE) (AUTO FUSE) (15A)	
HP901	1-500-200-11	HEAD, MAGNETIC (PLAYBACK)	
M901	X-3368-684-1	MOTOR ASSY, MAIN (CAPSTAN/REEL)	
M902	X-3368-685-1	MOTOR ASSY, SUB (LOADING/TAPE OPERATION)	
S901	1-692-885-11	SWITCH, ROTARY SLIDE (TAPE OPERATION)	

****

ACCESSORIES & PACKING MATERIALS

****

Ref. No.	Part No.	Description	Remark
	1-467-559-22	REMOTE COMMANDER (RM-X40)	
	1-473-067-31	REMOTE COMMANDER (RM-X2S)	
	3-798-362-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN)	
	3-798-362-41	MANUAL, INSTRUCTION (SPANISH, ITALIAN)	
	3-798-362-71	MANUAL, INSTRUCTION (DUTCH, SWEDISH, PORTUGUESE) (AEP, UK)	
	3-798-363-11	MANUAL, INSTRUCTION, INSTALL (ENGLISH, FRENCH, GERMAN, ITALIAN)	
	3-798-363-41	MANUAL, INSTRUCTION, INSTALL (SPANISH, DUTCH, SWEDISH, PORTUGUESE) (AEP, UK)	
	X-3369-665-1	CASE ASSY	
	X-3369-817-1	BRACKET ASSY	

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HARDWARE LIST

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Ref. No.	Part No.	Description
#1	7-621-770-67	SCREW +PTT 2.6X6 (S)
#2	7-621-773-87	SCREW +PTT 2.6X10 (S)
#3	7-624-104-04	STOP RING 2.0, TYPE -E
#4	7-627-553-17	PRECISION SCREW +P 2X2 TYPE 3
#5	7-628-253-05	SCREW +PS 2X4
#6	7-685-106-19	SCREW +P 2X10 TYPE2 NON-SLIT
#7	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT
#8	7-621-772-10	SCREW +B 2X4

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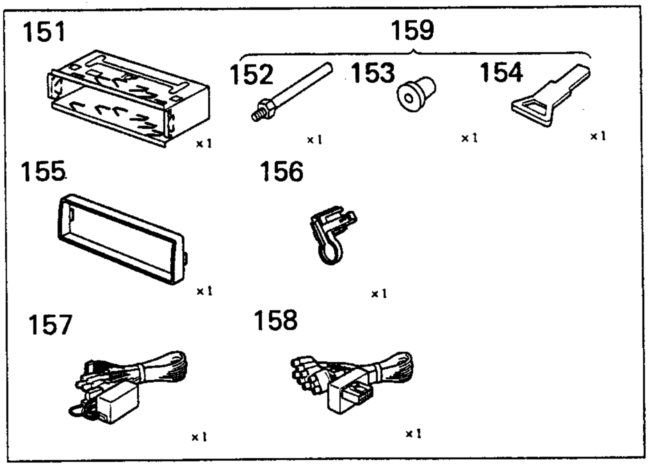
Ref. No.	Part No.	Description	Remark
		MOUNTING HARDWARE *****************	
* 151	3-916-161-01	FRAME, FITTING	
152	3-386-828-01	SCREW, FITTING	
153	3-349-410-01	BUSHING	
154	3-388-078-01	KEY	
155	3-920-584-01	COLLAR	
156	3-923-046-01	STOPPER	
157	1-765-081-11	CORD (WITH CONNECTOR)	
158	1-769-448-11	CORD (WITH CONNECTOR) (AUDIO)	
159	X-3370-077-1	SCREW ASSY (KEY), FITTING	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XR-C720RDS

SONY®
SERVICE MANUAL

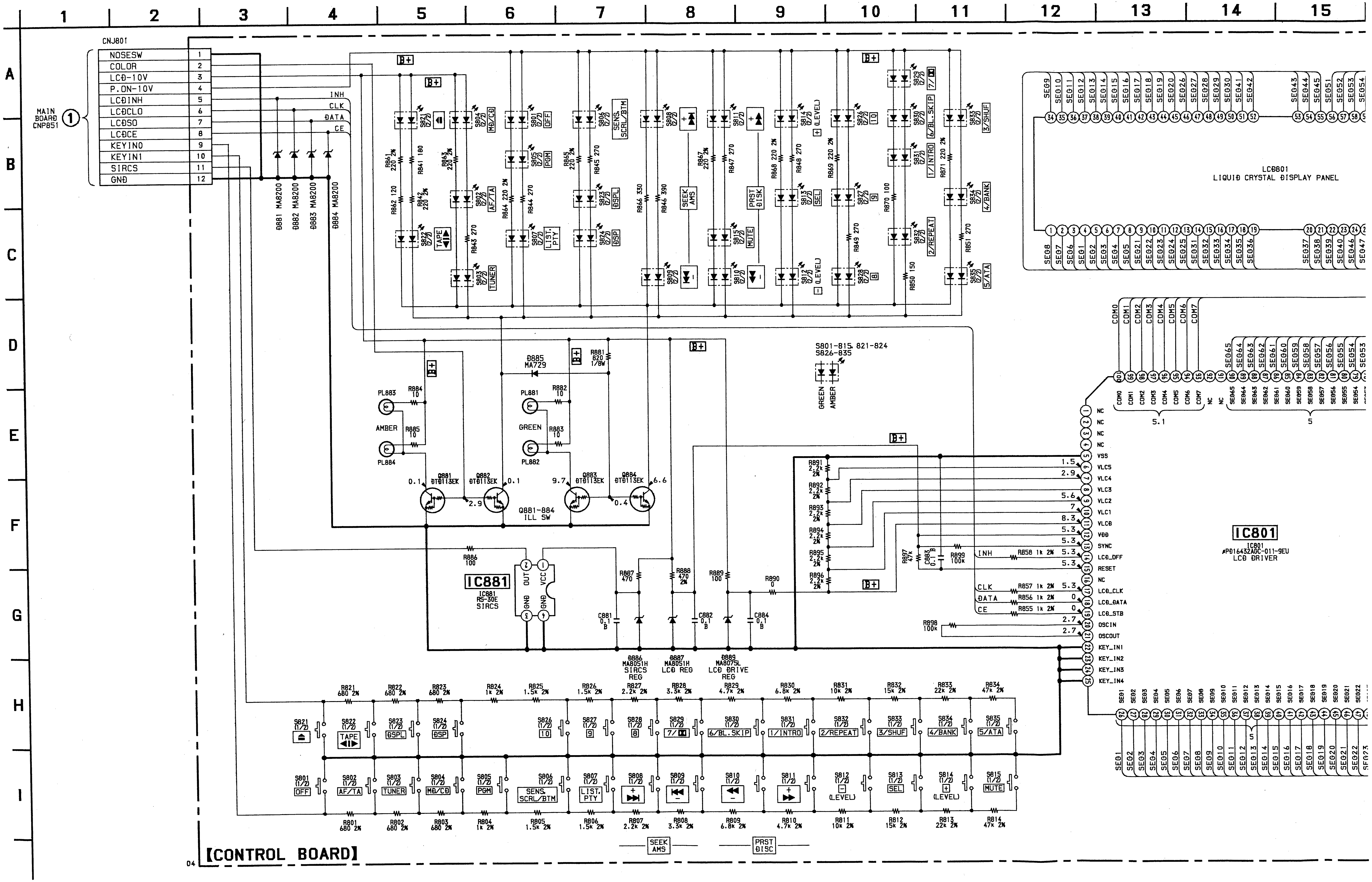
7538
AEP Model
UK Model

SUPPLEMENT-1

File this supplement with the service manual.

Subject: Change the Main Board and Schematic Diagram
Add the Electrical Parts List

1. SCHEMATIC DIAGRAM—PANEL SECTION—



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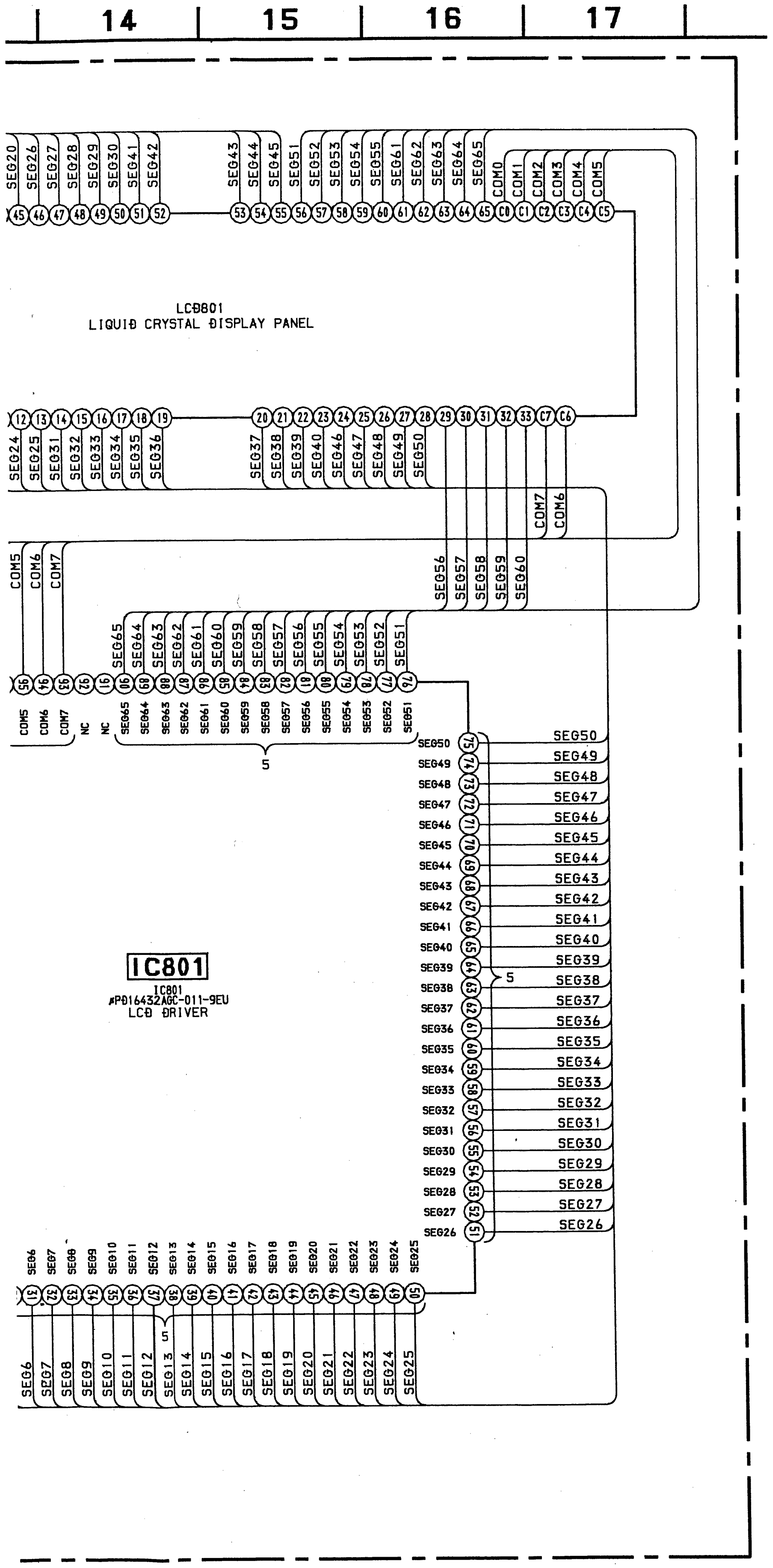
CNJ801
NOSESW
COLOR
LCD-10V
P.ON-10V
LCDINH
LCDCLO
LCDSO
LCDCE
KEYIN0
KEYIN1
SIRCS
GND
MAIN BOARD CNP851
①
INH
CLK
DATA
CE
D881 MA8200
D882 MA8200
D883 MA8200
D884 MA8200
B+
S821 (2/2)
S804 (2/2) MB/CD
S801 (2/2) OFF
S806 (2/2) SENS. SCRL/BTM
S808 (2/2)
S811 (2/2)
S814 (2/2) + LEVEL
S826 (2/2) 10
S829 (2/2) 7/
S830 (2/2) 6/BL.SKIP
S833 (2/2) 3/SHUF
S805 (2/2) PGM
S831 (2/2) 1/INTRO
S802 (2/2) AF/TA
S823 (2/2) DSPL
S813 (2/2) SEL
S827 (2/2) 9
S834 (2/2) 4/BANK
S822 (2/2) TAPE
S807 (2/2) LIST. PTY
S824 (2/2) DSP
S815 (2/2) MUTE
S832 (2/2) 2/REPEAT
S803 (2/2) TUNER
S809 (2/2)
S810 (2/2)
S812 (2/2) − LEVEL
S828 (2/2) 8
S835 (2/2) 5/ATA
SEEK AMS
PRST DISK
R861 220 2%
R841 180
R863 220 2%
R862 120
R842 220 2%
R843 270
R864 220 2%
R844 270
R865 220 2%
R845 270
R866 330
R846 390
R867 220 2%
R847 270
R868 220 2%
R848 270
R869 220 2%
R849 270
R870 100
R850 150
R871 220 2%
R851 270
LCD801
LIQUID CRYSTAL DISPLAY PANEL
S801-815, 821-824
S826-835
GREEN
AMBER
D885 MA729
R881 820 1/8W
PL883
PL881
PL884
PL882
R884 10
R885 10
R882 10
R883 10
Q881 DTD113EK
Q882 DTD113EK
Q883 DTD113EK
Q884 DTD113EK
Q881-884 ILL SW
0.1
2.9
9.7
0.4
6.6
R886 100
IC881
IC881 RS-30E SIRCS
OUT
VCC
GND
R887 470
R888 470 2%
R889 100
R890 0
C881 0.1 B
C882 0.1 B
C884 0.1 B
D886 MA8051H SIRCS REG
D887 MA8051H LCD REG
D889 MA8075L LCD DRIVE REG
R891 2.2k 2%
R892 2.2k 2%
R893 2.2k 2%
R894 2.2k 2%
R895 2.2k 2%
R896 2.2k 2%
R897 47k
C883 0.1 B
R899 100k
R898 100k
R858 1k 2%
R857 1k 2%
R856 1k 2%
R855 1k 2%
1.5
2.9
5.6
7
8.3
5.3
0
2.7
NC
VSS
VLC5
VLC4
VLC3
VLC2
VLC1
VLC0
VDD
SYNC
LCD_OFF
RESET
LCD_CLK
LCD_DATA
LCD_STB
OSCIN
OSCOUT
KEY_IN1
KEY_IN2
KEY_IN3
KEY_IN4
IC801
IC801 μPD16432AGC-011-9EU LCD DRIVER
COM0
COM1
COM2
COM3
COM4
COM5
COM6
COM7
5.1
SEG1
SEG2
SEG3
SEG65
R821 680 2%
R822 680 2%
R823 680 2%
R824 1k 2%
R825 1.5k 2%
R826 1.5k 2%
R827 2.2k 2%
R828 3.3k 2%
R829 4.7k 2%
R830 6.8k 2%
R831 10k 2%
R832 15k 2%
R833 22k 2%
R834 47k 2%
S821 (1/2)
S822 (1/2) TAPE
S823 (1/2) DSPL
S824 (1/2) DSP
S826 (1/2) 10
S827 (1/2) 9
S828 (1/2) 8
S829 (1/2) 7/
S830 (1/2) 6/BL.SKIP
S831 (1/2) 1/INTRO
S832 (1/2) 2/REPEAT
S833 (1/2) 3/SHUF
S834 (1/2) 4/BANK
S835 (1/2) 5/ATA
S801 (1/2) OFF
S802 (1/2) AF/TA
S803 (1/2) TUNER
S804 (1/2) MB/CD
S805 (1/2) PGM
S806 (1/2) SENS. SCRL/BTM
S807 (1/2) LIST. PTY
S808 (1/2)
S809 (1/2)
S810 (1/2)
S811 (1/2)
S812 (1/2) (LEVEL)
S813 (1/2) SEL
S814 (1/2) (LEVEL)
S815 (1/2) MUTE
R801 680 2%
R802 680 2%
R803 680 2%
R804 1k 2%
R805 1.5k 2%
R806 1.5k 2%
R807 2.2k 2%
R808 3.3k 2%
R809 6.8k 2%
R810 4.7k 2%
R811 10k 2%
R812 15k 2%
R813 22k 2%
R814 47k 2%
04
【CONTROL BOARD】


14
15
16
17
LCD801
LIQUID CRYSTAL DISPLAY PANEL
IC801
IC801
μPD16432AGC-011-9EU
LCD DRIVER
SEG20
SEG26
SEG27
SEG28
SEG29
SEG30
SEG41
SEG42
SEG43
SEG44
SEG45
SEG51
SEG52
SEG53
SEG54
SEG55
SEG61
SEG62
SEG63
SEG64
SEG65
COM0
COM1
COM2
COM3
COM4
COM5
COM6
COM7
SEG56
SEG57
SEG58
SEG59
SEG60
NC
5

Note :

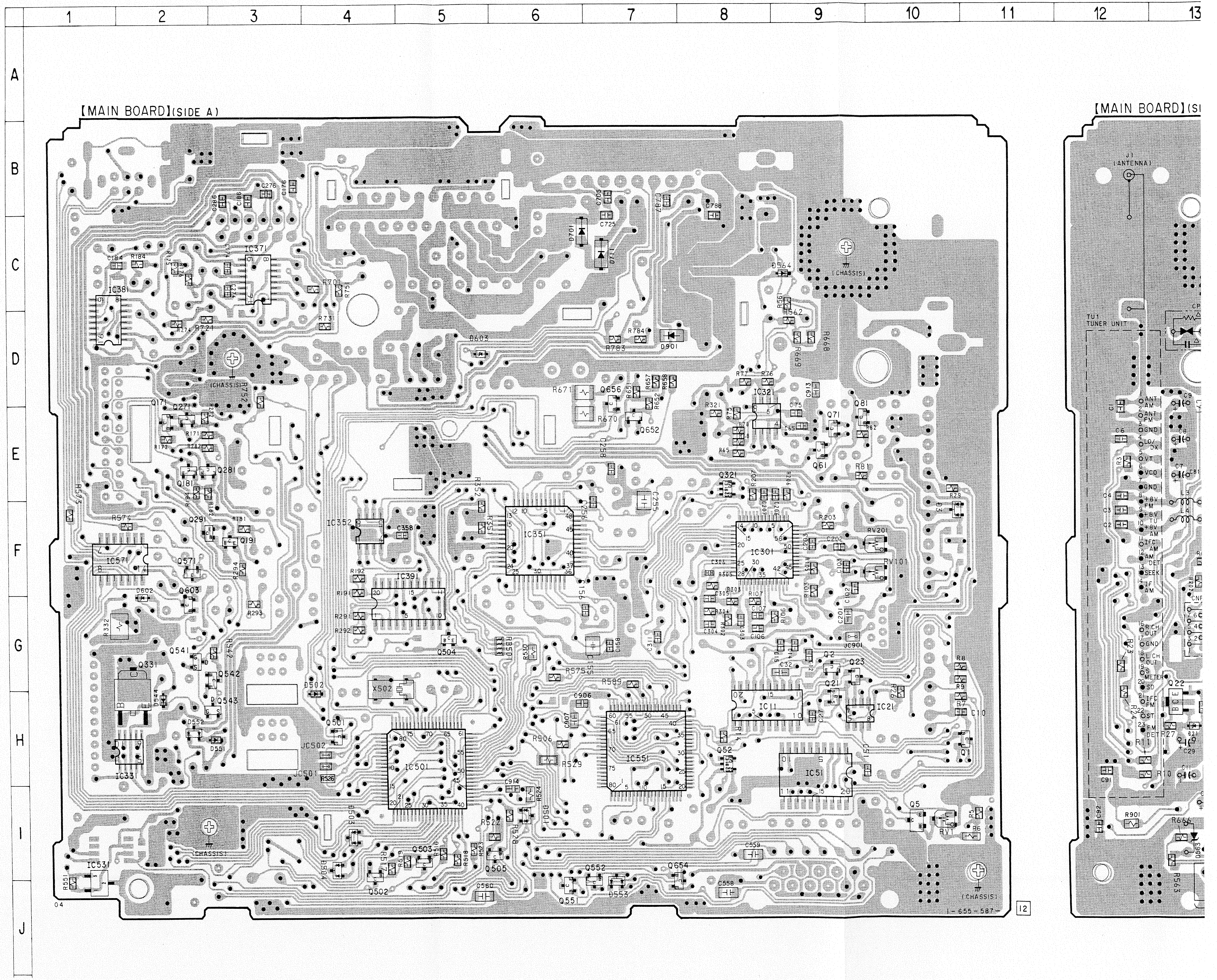
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- B+ : B+ Line
- Power voltage is dc 14.4V and fed with regulated dc power supply from BATT and ACC terminals.
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
- no mark: FM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.

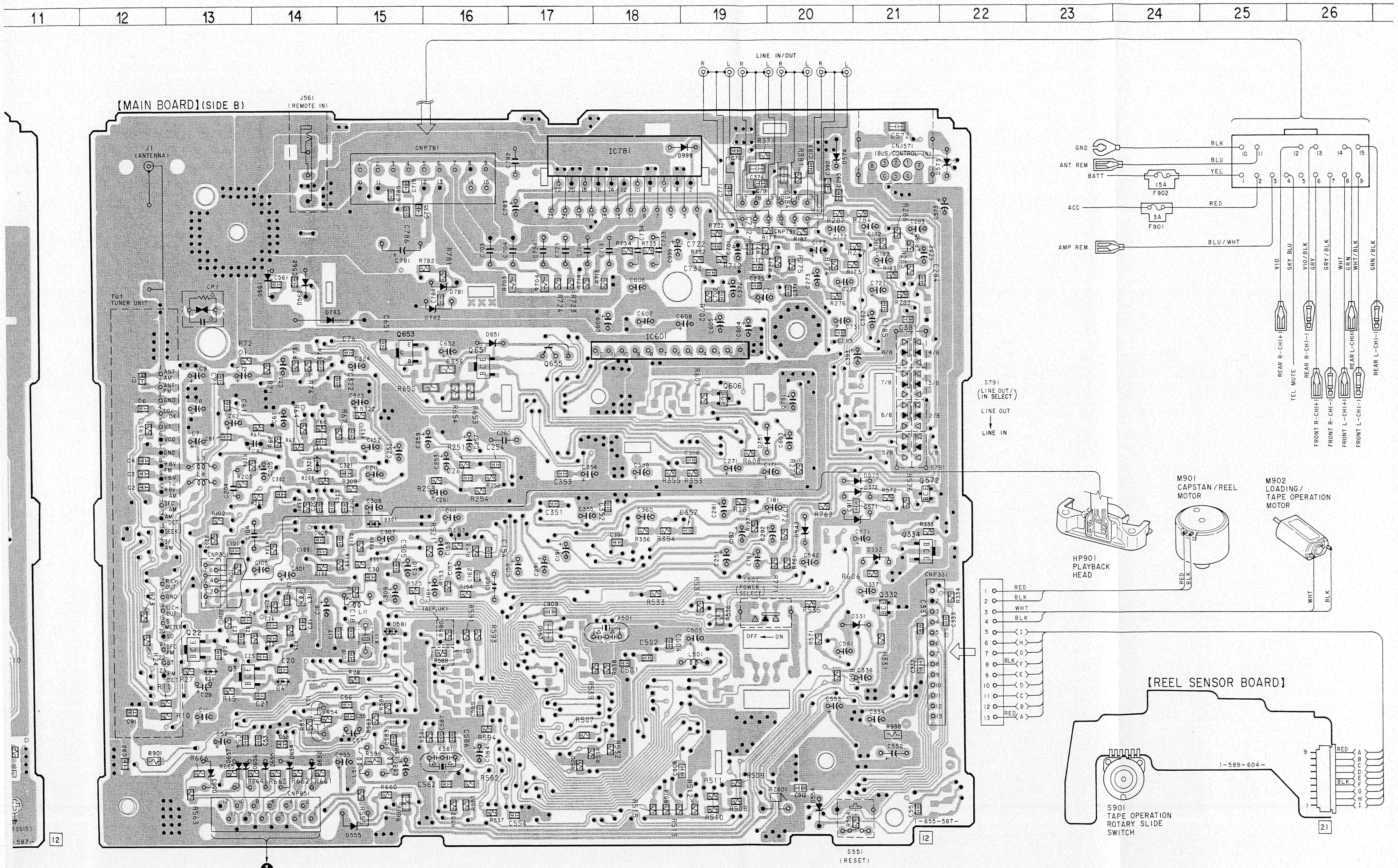
2. PRINTED WIRING BOARDS—MAIN SECTION—

- **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D3	F-10	IC352	F-4
D4	H-14	IC371	C-3
D21	H-13	IC381	C-1
D301	F-15	IC391	F-4
D321	E-14	IC501	H-5
D331	G-20	IC531	I-1
D332	G-21	IC551	H-7
D501	I-6	IC571	F-1
D502	G-4	IC601	D-18
D503	I-4	IC781	B-18
D504	I-4		
D543	F-20	Q1	H-10
D544	H-2	Q2	G-9
D551	H-3	Q3	H-13
D552	H-2	Q5	I-10
D553	J-7	Q21	H-9
D554	I-20	Q22	H-13
D555	J-15	Q23	G-9
D561	C-14	Q52	H-8
D562	C-14	Q61	E-9
D563	I-13	Q71	E-9
D564	C-9	Q81	E-9
D571	F-20	Q171	E-2
D572	F-20	Q181	E-2
D573	B-21	Q191	F-3
D574	B-20	Q271	E-2
D575	F-20	Q281	E-2
D581	G-15	Q291	F-2
D602	F-2	Q321	E-8
D603	D-5	Q331	G-2
D651	D-16	Q332	G-21
D652	I-14	Q334	F-21
D654	I-14	Q501	H-4
D655	I-13	Q502	I-4
D656	I-13	Q503	I-5
D657	I-13	Q504	G-5
D701	C-6	Q505	I-5
D711	C-7	Q541	G-2
D751	E-19	Q542	G-2
D781	D-16	Q543	H-2
D782	D-16	Q551	J-6
D783	D-14	Q552	I-7
D901	D-7	Q571	F-2
D999	B-19	Q572	F-21
		Q603	F-2
IC11	H-8	Q606	E-19
IC21	H-9	Q651	D-16
IC51	H-9	Q652	E-7
IC301	F-8	Q653	D-15
IC321	E-8	Q654	I-7
IC331	H-2	Q655	D-17
IC351	F-6	Q656	D-7

Note :
- ○— : parts extracted from the component side.
- ● : Through hole.
- ▨ : Pattern on the side which is seen.
  (The other layer's patterns are not indicated.)
- Abbreviation
  G : German model


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
J
【MAIN BOARD】(SIDE A)
【MAIN BOARD】(SI
J1 (ANTENNA)
TU1 TUNER UNIT
(CHASSIS)
IC371
IC381
IC352
IC351
IC391
IC301
IC321
IC571
IC331
IC501
IC551
IC11
IC21
IC51
IC531
Q171
Q271
Q181
Q281
Q291
Q191
Q571
Q603
Q541
Q331
Q542
Q543
Q501
Q504
Q503
Q505
Q502
Q551
Q552
Q654
Q656
Q652
Q321
Q61
Q71
Q81
Q21
Q2
Q23
Q22
Q52
Q5
Q1
D602
D603
D701
D711
D901
D564
D502
D552
D551
D553
X502
RV1
RV101
RV201
1-655-587-
12
04

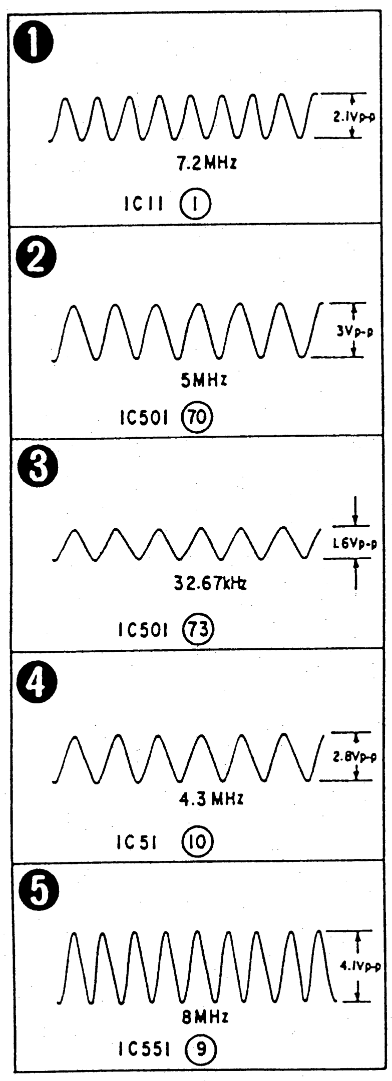

11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
【MAIN BOARD】(SIDE B)
J561 (REMOTE IN)
J1 (ANTENNA)
TU1 TUNER UNIT
CP1
CNP781
IC781
IC601
LINE IN/OUT
R
L
CNJ571 (BUS CONTROL IN)
CNP791
CNP301
CNP331
CNP851
S791 (LINE OUT/IN SELECT)
LINE OUT
LINE IN
S501 POWER SELECT
OFF ← ON
S551 (RESET)
BZ601
X501
X581
(AEP,UK)
(G)
Q653
Q651
Q655
Q606
Q572
Q334
Q332
Q22
Q3
1-655-587-
12
CONTROL BOARD CNJ801
GND
ANT REM
BATT
ACC
AMP REM
BLK
BLU
YEL
RED
BLU/WHT
15A
F902
3A
F901
VIO
SKY BLU
VIO/BLK
GRY
GRY/BLK
WHT
GRN
WHT/BLK
GRN/BLK
REAR R-CH(+)
TEL MUTE
REAR R-CH(−)
REAR L-CH(+)
REAR L-CH(−)
FRONT R-CH(+)
FRONT R-CH(−)
FRONT L-CH(+)
FRONT L-CH(−)
HP901 PLAYBACK HEAD
M901 CAPSTAN/REEL MOTOR
M902 LOADING/TAPE OPERATION MOTOR
【REEL SENSOR BOARD】
1-589-604-
S901 TAPE OPERATION ROTARY SLIDE SWITCH
21

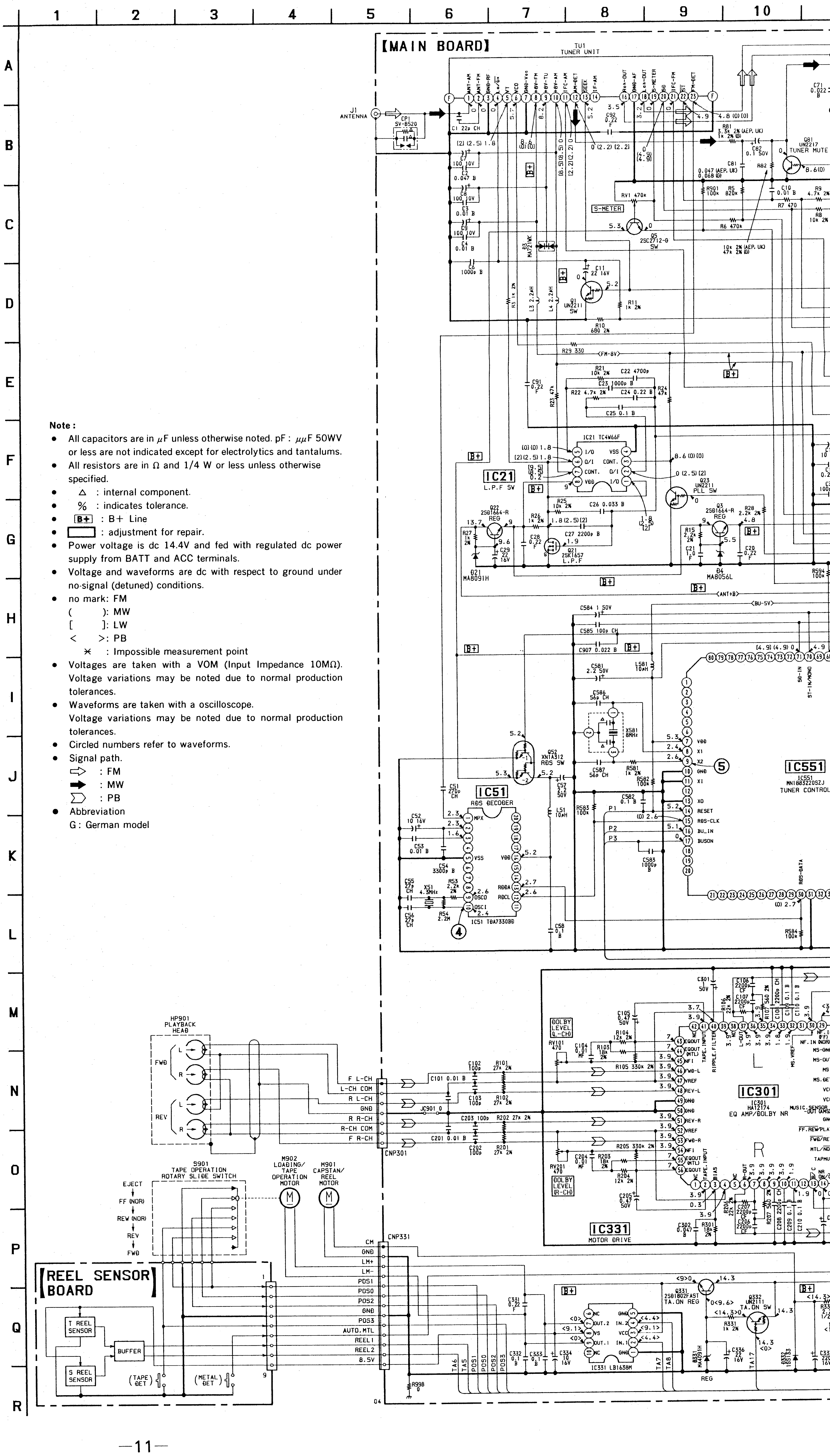
3. SCHEMATIC DIAGRAM—MAIN SECTION—

Note:

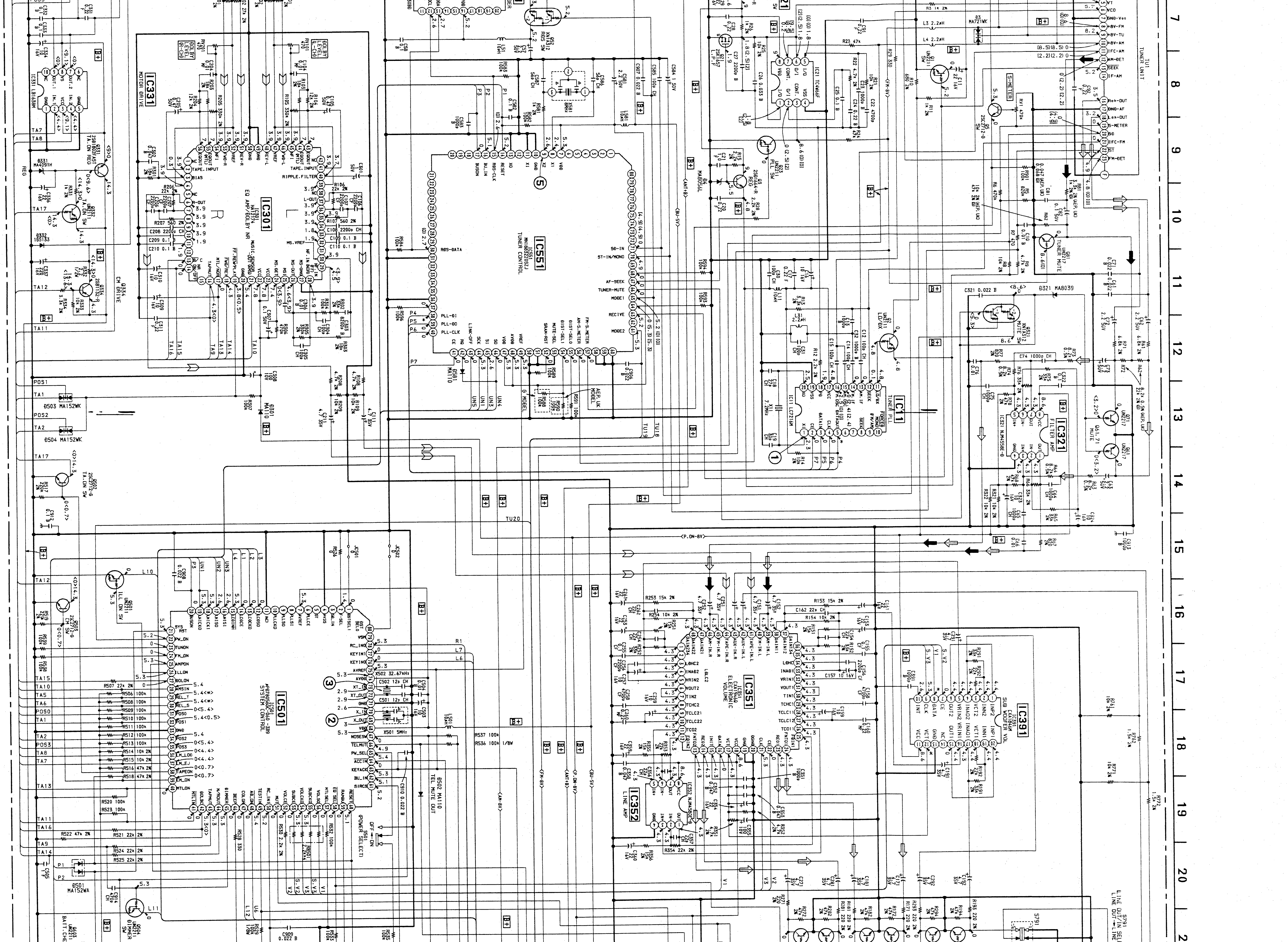
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- % : indicates tolerance.
- B+ : B+ Line
- ▭ : adjustment for repair.
- Power voltage is dc 14.4V and fed with regulated dc power supply from BATT and ACC terminals.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- no mark: FM
  ( ): MW
  [ ]: LW
  < >: PB
  ✳ : Impossible measurement point
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
  ➡ : MW
  ⊳ : PB
- Abbreviation
  G : German model

- **Waveforms**




1 2 3 4 5 6 7 8 9 10
A B C D E F G H I J K L M N O P Q R
[MAIN BOARD]
TU1 TUNER UNIT
J1 ANTENNA
CP1 SV-8520
ANT-AM
ANT-FM
GND-RF
VT
VCO
GND-Vcc
+8V-FM
+8V-TU
+8V-AM
IFC-AM
AM-DET
SEEK
IF-AM
Rch-OUT
GND-AF
Lch-OUT
S-METER
SD
IFC-FM
ST
FM-DET
S-METER
Q5 2SC2712-O SW
Q1 UN2211 SW
Q81 UN2217 TUNER MUTE
IC21 L.P.F SW
IC21 TC4W66F
Q22 2SB1664-R REG
Q21 2SK1657 L.P.F
Q23 UN2211 PLL SW
Q3 2SB1664-R REG
D21 MA8091H
D4 MA8056L
D3 MA721WK
IC51 RDS DECODER
IC51 TDA7330BD
Q52 XN1A312 RDS SW
IC551 MN188322OSZJ TUNER CONTROL
X581 8MHz
X51 4.3MHz
RDS-DATA
RESET
RDS-CLK
BU_IN
BUSON
HP901 PLAYBACK HEAD
FWD
REV
F L-CH
L-CH COM
R L-CH
GND
R R-CH
R-CH COM
F R-CH
CNP301
IC301 HA12174 EQ AMP/DOLBY NR
DOLBY LEVEL (L-CH)
DOLBY LEVEL (R-CH)
RIPPLE.FILTER
TAPE.INPUT
IC331 MOTOR DRIVE
IC331 LB1638M
S901 TAPE OPERATION ROTARY SLIDE SWITCH
EJECT
FF (NOR)
REW (NOR)
REV
FWD
M902 LOADING/ TAPE OPERATION MOTOR
M901 CAPSTAN/ REEL MOTOR
CM
GND
LM+
LM-
POS1
POS0
POS2
GND
POS3
AUTO.MTL
REEL1
REEL2
B.5V
CNP331
[REEL SENSOR BOARD]
T REEL SENSOR
S REEL SENSOR
BUFFER
(TAPE DET)
(METAL DET)
Q331 2SB1802FAST TA.ON REG
Q332 UN2111 TA.ON SW
D331 MA4091H
D332 1SS133
REG

SuPPL.


IC331 MOTOR DRIVE
IC301 EQ AMP/DOLBY NR
IC551 TUNER CONTROL
IC501 SYSTEM CONTROL
IC351 ELECTRONIC VOLUME
IC352 LINE AMP
IC391 SUB WOOFER VOL
IC321 FILTER AMP
IC11 TUNER PLL
IC21
TU1 TUNER UNIT
Q331 TA.ON REG
Q332 TA.ON SW
Q334 CH DRIVE
Q502 TA.ON SW
Q503 CH SW
Q501 ILL ON SW
Q504 DIMMER SW
Q11 TUNER MUTE
Q21 MUTE
Q61, 71 MUTE
Q321 MUTE
Q2 LO/DX
Q3 PLL SW
D503 MA152WK
D504 MA152WK
D501 MA152WA
D502 MA110 TEL MUTE OUT
D331 MA4091H
D332 1SS133
D321 MA8039
D581 MA110
X501 5MHz
X502 32.67kHz
X11 7.2MHz
S501 (POWER SELECT)
S791 LINE OUT SEL
RDS-DATA
PLL-DI
PLL-DO
PLL-CLK
SD-IN
ST-IN/MONO
AF-SEEK
TUNER-MUTE
MODE1
RECIVE
MODE2
<P.ON-8V>
<AM-8V>
<FM-8V>
<BU-5V>
<ANT+B>
B+
TU20
REG
7
8
9
10
11
12
13
14
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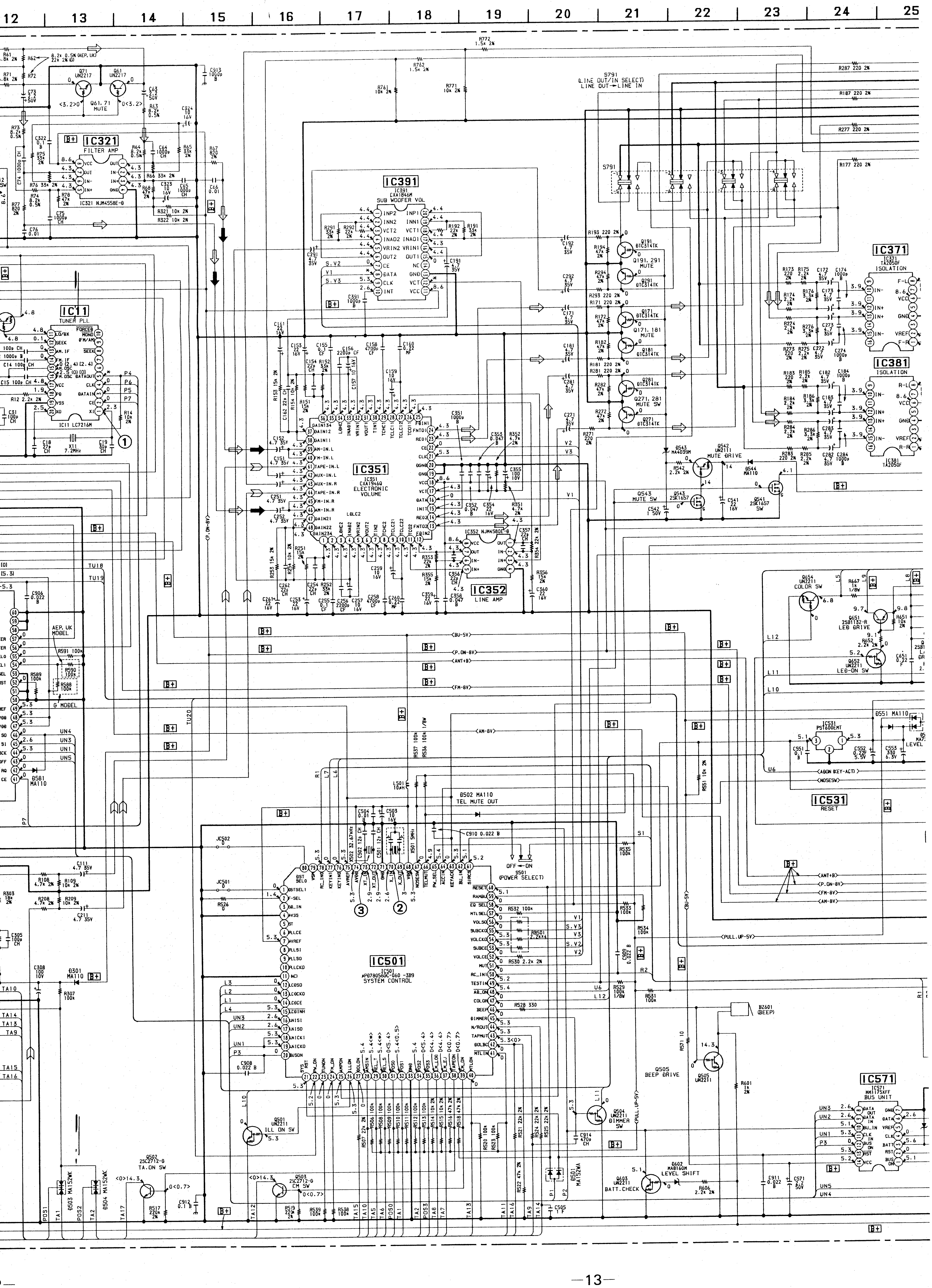
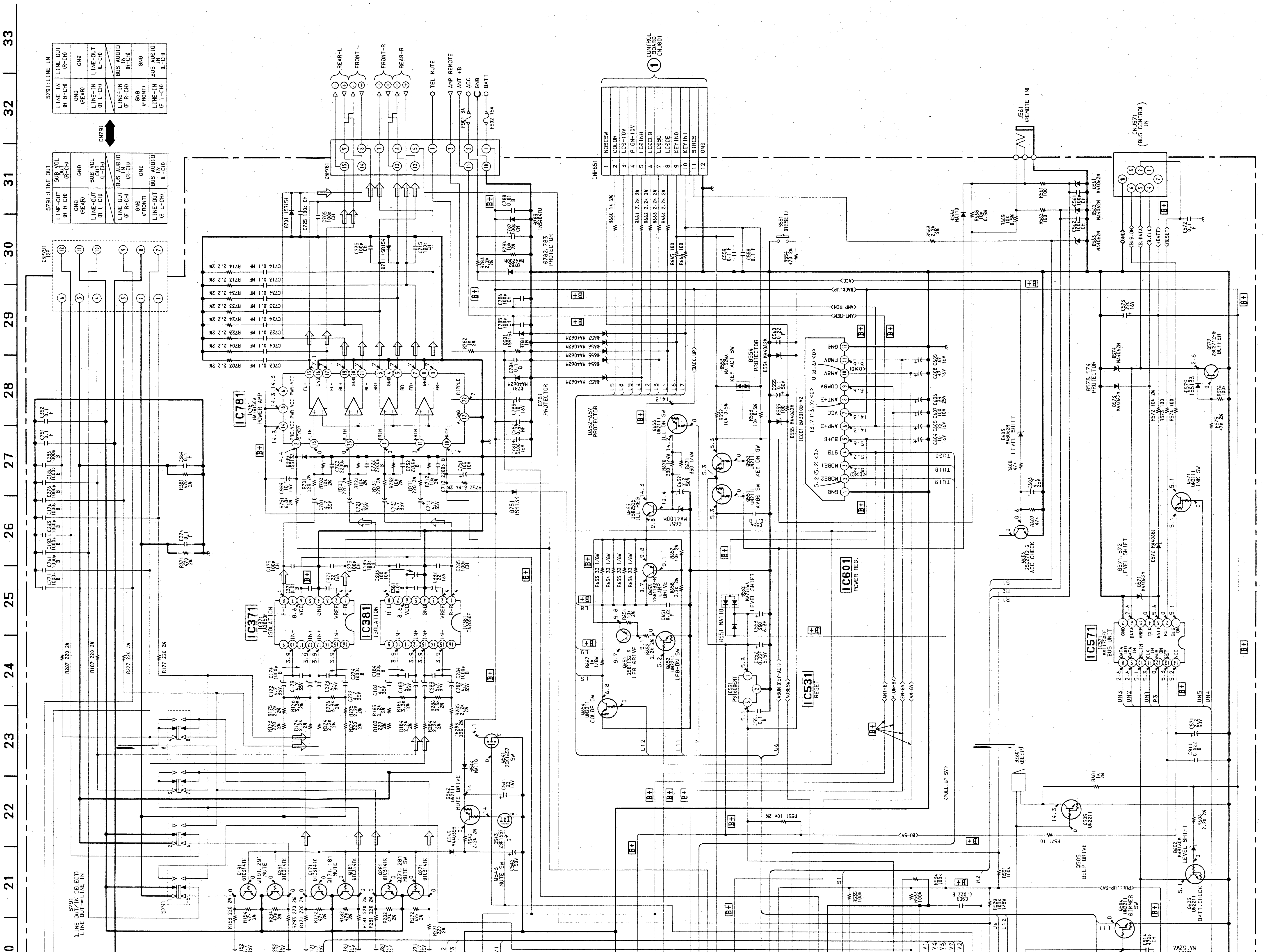
16
17
18
19
20


12
13
14
15
16
17
18
19
20
21
22
23
24
25
IC321
FILTER AMP
IC321 NJM4558E-B
Q61, 71
MUTE
IC11
TUNER PLL
IC11 LC7216M
X11
7.2MHz
IC391
CXA1846M
SUB WOOFER VOL
IC351
CXA1946Q
ELECTRONIC
VOLUME
IC352
LINE AMP
IC352 NJM4580E-B
IC371
TA2050F
ISOLATION
IC381
TA2050F
ISOLATION
S791
(LINE OUT/IN SELECT)
LINE OUT ← LINE IN
Q191, 291
MUTE
Q171, 181
MUTE
Q271, 281
MUTE SW
Q542
UN2111
MUTE DRIVE
Q543
MUTE SW
Q541
2SK1657
SW
D544
MA110
D543
MA4039M
Q654
UN2211
COLOR SW
Q651
2SB1132-R
LED DRIVE
Q652
UN2211
LED-ON SW
IC531
PST600EMT
RESET
D551 MA110
IC501
μPD780056GC-060 -3B9
SYSTEM CONTROL
X502 32.67kHz
X501 5MHz
D502 MA110
TEL MUTE OUT
S501
(POWER SELECT)
OFF ← ON
RB501
2.2k×4
AEP, UK
MODEL
G MODEL
D581
MA110
D301
MA110
Q501
UN2211
ILL ON SW
Q502
2SC2712-G
TA.ON SW
Q503
2SC2712-G
CM SW
D503 MA152WK
D504 MA152WK
D501
MA152WA
Q504
UN2211
DIMMER
SW
Q505
BEEP DRIVE
Q505
UN2211
BZ601
(BEEP)
Q602
MA8160M
LEVEL SHIFT
Q603
UN2211
BATT.CHECK
IC571
MM1175XFF
BUS UNIT
<BU-5V>
<P.ON-8V>
<ANT+B>
<FM-8V>
<AM-8V>
<PULL.UP-5V>
<ABON (KEY-ACT)>
<NOSESW>
B+
TU18
TU19
TU20
JC501
JC502
①
②
③


S791:LINE IN
S791:LINE OUT
CNJ791
CNP791
CNP781
REAR-L
FRONT-L
FRONT-R
REAR-R
TEL MUTE
AMP REMOTE
ANT +B
ACC
GND
BATT
F901 3A
F902 15A
① CONTROL BOARD CNJ801
CNP851
IC781 HA13150A POWER AMP
D781 PROTECTOR
D782, 783 PROTECTOR
IC371 TA2050F ISOLATION
IC381 TA2050F ISOLATION
IC601 BA3910B-V2
IC601 POWER REG.
IC531 PST600EMT
IC531 RESET
IC571 MM1175AFF BUS UNIT
D652-657 PROTECTOR
D554 PROTECTOR
Q655 ILL REG
Q656 ILL ON SW
Q651 LED DRIVE
Q652 LED ON SW
Q653 LAMP DRIVE
Q654 COLOR SW
Q551 AVGU SW
Q552 KEY ON SW
Q553 KEY ACT SW
Q541 MUTE SW
Q542 MUTE DRIVE
Q543 MUTE SW
Q191, 291 MUTE
Q171, 181 MUTE
Q271, 281 MUTE SW
D573, 574 PROTECTOR
Q572 BUFFER
Q571 LINK SW
D571, 572 LEVEL SHIFT
D603 LEVEL SHIFT
D602 LEVEL SHIFT
Q606 ACC CHECK
Q505 BEEP DRIVE
Q603 BATT.CHECK
Q604 DIMMER SW
BZ601 BEEP
J561 (REMOTE IN)
CNJ571 (BUS CONTROL) IN
S791 (LINE OUT/IN SELECT) LINE OUT↔LINE IN
20
21
22
23
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27
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31
32
33

4. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA..   uPA..: μPA..
  uPB..: μPB..   uPC..: μPC..   uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

- Abbreviation
  G : German model

Ref. No.	Part No.	Description			Remark
		CONTROL BOARD			
		*************			
*	3-920-601-01	HOLDER (LCD)			
*	3-920-602-01	SHEET (REFLECTOR)			
*	3-920-610-01	PLATE (LCD), LIGHT GUIDE			
		< CAPACITOR >			
C881-884	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
		< CONNECTOR >			
CNJ801	1-764-423-11	PIN, CONNECTOR 12P			
		< DIODE >			
D881	8-719-017-98	DIODE	MA8200-TX		
D882	8-719-017-98	DIODE	MA8200-TX		
D883	8-719-017-98	DIODE	MA8200-TX		
D884	8-719-017-98	DIODE	MA8200-TX		
D885	8-719-420-51	DIODE	MA729		
D886	8-719-422-43	DIODE	MA8051-H		
D887	8-719-422-43	DIODE	MA8051-H		
D889	8-719-422-73	DIODE	MA8075-L		
		< IC >			
IC801	8-759-331-68	IC	uPD16432AGC-011-9EU		
IC881	8-749-925-07	IC	RS-30E-T		
		< LIQUID CRYSTAL DISPLAY >			
LCD801	1-810-774-11	DISPLAY PANEL, LIQUID CRYSTAL			
		< PILOT LAMP >			
PL881	1-517-181-41	LAMP, PILOT			
PL882	1-517-181-41	LAMP, PILOT			
PL883	1-517-181-51	LAMP, PILOT			
PL884	1-517-181-51	LAMP, PILOT			
		< TRANSISTOR >			
Q881	8-729-904-66	TRANSISTOR	DTD113EK		

Ref. No.	Part No.	Description			Remark
Q882	8-729-904-66	TRANSISTOR	DTD113EK		
Q883	8-729-904-66	TRANSISTOR	DTD113EK		
Q884	8-729-904-66	TRANSISTOR	DTD113EK		
		< RESISTOR >			
R801-803	1-216-647-11	METAL CHIP	680	0.5%	1/10W
R804	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R805	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R806	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R807	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R808	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R809	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R810	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W
R811	1-208-806-11	METAL GLAZE	10K	2%	1/10W
R812	1-208-810-11	METAL GLAZE	15K	2%	1/10W
R813	1-208-814-11	METAL GLAZE	22K	2%	1/10W
R814	1-208-822-11	METAL GLAZE	47K	2%	1/10W
R821-823	1-216-647-11	METAL CHIP	680	0.5%	1/10W
R824	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R825	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R826	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R827	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R828	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R829	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W
R830	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R831	1-208-806-11	METAL GLAZE	10K	2%	1/10W
R832	1-208-810-11	METAL GLAZE	15K	2%	1/10W
R833	1-208-814-11	METAL GLAZE	22K	2%	1/10W
R834	1-208-822-11	METAL GLAZE	47K	2%	1/10W
R841	1-216-031-00	METAL CHIP	180	5%	1/10W
R842	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R843-845	1-216-035-00	METAL CHIP	270	5%	1/10W
R846	1-216-039-00	METAL CHIP	390	5%	1/10W
R847-849	1-216-035-00	METAL CHIP	270	5%	1/10W
R850	1-216-029-00	METAL CHIP	150	5%	1/10W
R851	1-216-035-00	METAL CHIP	270	5%	1/10W

SuPPL.

Ref. No.	Part No.	Description			Remark
R855-858	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R861	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R862	1-216-027-00	METAL CHIP	120	5%	1/10W
R863-865	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R866	1-216-037-00	METAL CHIP	330	5%	1/10W
R867-869	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R870	1-216-025-00	METAL CHIP	100	5%	1/10W
R871	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R881	1-216-196-00	METAL GLAZE	820	5%	1/8W
R882-885	1-216-001-00	METAL CHIP	10	5%	1/10W
R886	1-216-025-00	METAL CHIP	100	5%	1/10W
R887	1-216-041-00	METAL CHIP	470	5%	1/10W
R888	1-208-774-11	METAL GLAZE	470	2%	1/10W
R889	1-216-025-00	METAL CHIP	100	5%	1/10W
R890	1-216-295-00	METAL CHIP	0	5%	1/10W
R891-896	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R897	1-216-089-00	METAL CHIP	47K	5%	1/10W
R898	1-216-097-00	METAL CHIP	100K	5%	1/10W
R899	1-216-097-00	METAL CHIP	100K	5%	1/10W
		< SWITCH >			
S801	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(OFF)		
S802	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(AF/TA)		
S803	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(TUNER)		
S804	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(MD/CD)		
S805	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(PGM)		
S806	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(SENS, SCRL/BTM)		
S807	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(LIST, PTY)		
S808	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(+ ⏭ (SEEK AMS))		
S809	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(- ⏮ (SEEK AMS))		
S810	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(- ⏪ (PRST DISC))		
S811	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(+ ⏩ (PRST DISC))		
S812	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(- (LEVEL))		
S813	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(SEL)		
S814	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(+ (LEVEL))		
S815	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(MUTE)		
S821	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(⏏)		
S822	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(TAPE ◀▮▶)		
S823	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(DSPL)		
S824	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(DSP)		
S826	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(10)		

Ref. No.	Part No.	Description			Remark
S827	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(9)		
S828	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(8)		
S829	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(7/□□)		
S830	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(6/BL. SKIP)		
S831	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(1/INTRO)		
S832	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(2/REPEAT)		
S833	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(3/SHUF)		
S834	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(4/BANK)		
S835	1-762-143-11	SWITCH, KEY BOARD (WITH LED)	(5/ATA)		
**					
*	A-3298-546-A	MAIN BOARD, COMPLETE (AEP, UK)			
*	A-3298-548-A	MAIN BOARD, COMPLETE (G)			
		********************			
*	3-920-605-01	HEAT SINK (IC)			
		< BUZZER >			
BZ601	1-504-468-21	SOUNDER, PIEZOELECTRIC			
		< CAPACITOR >			
C1	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C2	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C3	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C4	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C6	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C7-9	1-126-933-11	ELECT	100uF	20%	10V
C10	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C11	1-124-234-00	ELECT	22uF	20%	16V
C12	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C13	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C14	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C15	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C16	1-126-157-11	ELECT	10uF	20%	16V
C17	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C18	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C19	1-163-104-00	CERAMIC CHIP	30PF	5%	50V
C20	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C21	1-164-346-11	CERAMIC CHIP	1uF		16V
C22	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C23	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C24	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C25	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C26	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C27	1-104-543-11	FILM CHIP	0.0022uF	5%	50V
C28	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C29	1-124-234-00	ELECT	22uF	20%	16V
C30	1-163-251-11	CERAMIC CHIP	100PF	5%	50V

Ref. No.	Part No.	Description			Remark
C31	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C32	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C51	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C52	1-126-157-11	ELECT	10uF	20%	16V
C53	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C54	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C55	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C56	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C57	1-124-257-00	ELECT	2.2uF	20%	50V
C58	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C61	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C62	1-126-161-11	ELECT	2.2uF	20%	50V
C63	1-126-161-11	ELECT	2.2uF	20%	50V
C64	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C65	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C66	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C71	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C72	1-126-161-11	ELECT	2.2uF	20%	50V
C73	1-126-161-11	ELECT	2.2uF	20%	50V
C74	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C75	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C76	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C81	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V (AEP, UK)
C81	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V (G)
C82	1-124-463-00	ELECT	0.1uF	20%	50V
C91	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C92	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C101	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C102	1-104-527-11	FILM CHIP	100PF	5%	50V
C103	1-104-527-11	FILM CHIP	100PF	5%	50V
C104	1-136-153-00	FILM	0.01uF	5%	50V
C105	1-104-941-11	ELECT	0.47uF	20%	50V
C106	1-104-543-11	FILM CHIP	0.0022uF	5%	50V
C107	1-104-543-11	FILM CHIP	0.0022uF	5%	50V
C108	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C109	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C110	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C111	1-126-294-11	ELECT	4.7uF	20%	35V
C151	1-126-294-11	ELECT	4.7uF	20%	35V
C152	1-126-294-11	ELECT	4.7uF	20%	35V
C153	1-104-952-11	ELECT	22uF	20%	16V
C154	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C155	1-104-563-11	FILM CHIP	0.1uF	5%	16V
C156	1-104-543-11	FILM CHIP	0.0022uF	5%	50V
C157	1-104-951-11	ELECT	10uF	20%	16V
C158	1-104-547-11	FILM CHIP	0.0047uF	5%	16V
C159	1-104-951-11	ELECT	10uF	20%	16V

Ref. No.	Part No.	Description			Remark
C160	1-136-169-00	FILM	0.22uF	5%	50V
C161	1-104-952-11	ELECT	22uF	20%	16V
C162	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C171-173	1-126-294-11	ELECT	4.7uF	20%	35V
C174	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C175	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C176	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C181-183	1-126-294-11	ELECT	4.7uF	20%	35V
C184	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C185	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C186	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C191	1-126-294-11	ELECT	4.7uF	20%	35V
C192	1-126-294-11	ELECT	4.7uF	20%	35V
C193	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C201	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C202	1-104-527-11	FILM CHIP	100PF	5%	50V
C203	1-104-527-11	FILM CHIP	100PF	5%	50V
C204	1-136-153-00	FILM	0.01uF	5%	50V
C205	1-104-941-11	ELECT	0.47uF	20%	50V
C206	1-104-543-11	FILM CHIP	0.0022uF	5%	50V
C207	1-104-543-11	FILM CHIP	0.0022uF	5%	50V
C208	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C209	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C210	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C211	1-126-294-11	ELECT	4.7uF	20%	35V
C251	1-126-294-11	ELECT	4.7uF	20%	35V
C252	1-126-294-11	ELECT	4.7uF	20%	35V
C253	1-104-952-11	ELECT	22uF	20%	16V
C254	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C255	1-104-563-11	FILM CHIP	0.1uF	5%	16V
C256	1-104-543-11	FILM CHIP	0.0022uF	5%	50V
C257	1-104-951-11	ELECT	10uF	20%	16V
C258	1-104-547-11	FILM CHIP	0.0047uF	5%	16V
C259	1-104-951-11	ELECT	10uF	20%	16V
C260	1-136-169-00	FILM	0.22uF	5%	50V
C261	1-104-952-11	ELECT	22uF	20%	16V
C262	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C271-273	1-126-294-11	ELECT	4.7uF	20%	35V
C274	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C275	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C276	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C281-283	1-126-294-11	ELECT	4.7uF	20%	35V
C284	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C285	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C286	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V

Ref. No.	Part No.	Description			Remark
C291	1-126-294-11	ELECT	4.7uF	20%	35V
C292	1-126-294-11	ELECT	4.7uF	20%	35V
C293	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C301	1-126-301-11	ELECT	1uF	20%	50V
C302	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C303	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V
C304	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C305	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C306	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C307	1-124-463-00	ELECT	0.1uF	20%	50V
C308	1-126-277-11	ELECT	100uF	20%	10V
C309	1-126-157-11	ELECT	10uF	20%	16V
C310	1-126-157-11	ELECT	10uF	20%	16V
C311	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C321	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C322	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C323	1-104-951-11	ELECT	10uF	20%	16V
C324	1-104-951-11	ELECT	10uF	20%	16V
C331	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C332	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C333	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C334	1-126-157-11	ELECT	10uF	20%	16V
C336	1-124-234-00	ELECT	22uF	20%	16V
C337	1-126-934-11	ELECT	220uF	20%	16V
C351	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C352	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C353	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C354	1-104-952-11	ELECT	22uF	20%	16V
C355	1-126-277-11	ELECT	100uF	20%	10V
C356	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C357	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C358	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C359	1-104-952-11	ELECT	22uF	20%	16V
C360	1-104-952-11	ELECT	22uF	20%	16V
C371	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C372	1-104-952-11	ELECT	22uF	20%	16V
C374	1-163-077-00	CERAMIC CHIP	0.1uF		50V
C381	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C382	1-104-952-11	ELECT	22uF	20%	16V
C384	1-163-077-00	CERAMIC CHIP	0.1uF		50V
C391	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C392	1-163-077-00	CERAMIC CHIP	0.1uF		50V
C393	1-126-277-11	ELECT	100uF	20%	10V
C501	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C502	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C503	1-126-157-11	ELECT	10uF	20%	16V
C504	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C505	1-164-346-11	CERAMIC CHIP	1uF		16V
C541	1-124-234-00	ELECT	22uF	20%	16V

Ref. No.	Part No.	Description			Remark
C542	1-126-301-11	ELECT	1uF	20%	50V
C551	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C552	1-125-705-11	DOUBLE LAYERS	0.22F		5.5V
C553	1-128-057-11	ELECT	330uF	20%	6.3V
C554	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C555	1-124-463-00	ELECT	0.1uF	20%	50V
C558	1-163-077-00	CERAMIC CHIP	0.1uF		50V
C559	1-163-077-00	CERAMIC CHIP	0.1uF		50V
C560	1-163-081-00	CERAMIC CHIP	0.22uF		25V
C561	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C562	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C571	1-124-257-00	ELECT	2.2uF	20%	50V
C572	1-163-077-00	CERAMIC CHIP	0.1uF		50V
C573	1-126-934-11	ELECT	220uF	20%	16V
C581	1-124-257-00	ELECT	2.2uF	20%	50V
C582	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C583	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C584	1-126-301-11	ELECT	1uF	20%	50V
C585	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C586	1-163-245-11	CERAMIC CHIP	56PF	5%	50V
C587	1-163-245-11	CERAMIC CHIP	56PF	5%	50V
C603	1-126-163-11	ELECT	4.7uF	20%	50V
C604	1-126-157-11	ELECT	10uF	20%	16V
C605	1-124-234-00	ELECT	22uF	20%	16V
C606	1-128-195-11	ELECT	39uF	20%	25V
C607	1-126-277-11	ELECT	100uF	20%	10V
C608	1-124-589-11	ELECT	47uF	20%	16V
C609	1-124-589-11	ELECT	47uF	20%	16V
C651	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C652	1-124-257-00	ELECT	2.2uF	20%	50V
C701	1-126-294-11	ELECT	4.7uF	20%	35V
C702	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C703	1-136-165-00	FILM	0.1uF	5%	50V
C704	1-136-165-00	FILM	0.1uF	5%	50V
C705	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C711	1-126-294-11	ELECT	4.7uF	20%	35V
C712	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C713	1-136-165-00	FILM	0.1uF	5%	50V
C714	1-136-165-00	FILM	0.1uF	5%	50V
C715	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C721	1-126-294-11	ELECT	4.7uF	20%	35V
C722	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C723	1-136-165-00	FILM	0.1uF	5%	50V
C724	1-136-165-00	FILM	0.1uF	5%	50V
C725	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C731	1-126-294-11	ELECT	4.7uF	20%	35V
C732	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C733	1-136-165-00	FILM	0.1uF	5%	50V
C734	1-136-165-00	FILM	0.1uF	5%	50V

Ref. No.	Part No.	Description		Remark	
C735	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C751	1-124-584-00	ELECT	100uF	20%	10V
C761	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C771	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C781	1-111-233-11	ELECT	5600uF	20%	16V
C782	1-136-173-00	FILM	0.47uF	5%	50V
C783	1-104-951-11	ELECT	10uF	20%	16V
C784	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C785-787	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C788	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C791	1-163-077-00	CERAMIC CHIP	0.1uF		50V
C906-909	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C910	1-163-063-00	CERAMIC CHIP	0.022uF	10%	50V
C911	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C912	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C913	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C914	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C999	1-126-157-11	ELECT	10uF	20%	16V

< CONNECTOR >

Ref. No.	Part No.	Description
CNJ571	1-580-907-31	PLUG, CONNECTOR (BUS CONTROL IN)
CNP301	1-766-260-11	CONNECTOR, FFC/FPC (ZIF) 7P
* CNP331	1-506-995-11	PIN, CONNECTOR (PC BOARD) 13P
CNP781	1-764-426-11	PLUG, CONNECTOR 15P
CNP791	1-770-284-21	PLUG, CONNECTOR (PC BOARD)
CNP851	1-764-422-11	PLUG, CONNECTOR 12P

< DISCHARGE GAP >

Ref. No.	Part No.	Description
CP1	1-519-504-11	GAP, DISCHARGE

< DIODE >

Ref. No.	Part No.	Description	
D3	8-719-040-04	DIODE	MA721WK-(TX)
D4	8-719-422-49	DIODE	MA8056-L
D21	8-719-422-97	DIODE	MA8091-M
D301	8-719-404-46	DIODE	MA110
D321	8-719-422-12	DIODE	MA8039
D331	8-719-034-63	DIODE	MA4091-H(QZ)
D332	8-719-050-86	DIODE	1SS133T-91S
D501	8-719-400-20	DIODE	MA152WA
D502	8-719-404-46	DIODE	MA110
D503	8-719-801-78	DIODE	1SS184
D504	8-719-801-78	DIODE	1SS184
D543	8-719-034-22	DIODE	MA4039-M(QZ)
D544	8-719-404-46	DIODE	MA110
D551	8-719-404-46	DIODE	MA110
D552	8-719-041-79	DIODE	MA721WA-TX
D553	8-719-400-20	DIODE	MA152WA
D554	8-719-034-46	DIODE	MA4062-M(QZ)
D555	8-719-034-46	DIODE	MA4062-M(QZ)
D561	8-719-034-46	DIODE	MA4062-M(QZ)
D562	8-719-034-46	DIODE	MA4062-M(QZ)
D563	8-719-034-46	DIODE	MA4062-M(QZ)
D564	8-719-404-46	DIODE	MA110
D571	8-719-034-46	DIODE	MA4062-M(QZ)
D572	8-719-034-49	DIODE	MA4068-L(QZ)
D573	8-719-034-46	DIODE	MA4062-M(QZ)
D574	8-719-034-46	DIODE	MA4062-M(QZ)
D575	8-719-050-86	DIODE	1SS133T-91S
D581	8-719-404-46	DIODE	MA110
D602	8-719-022-90	DIODE	MA8160-M
D603	8-719-422-64	DIODE	MA8062-M
D651	8-719-034-66	DIODE	MA4100-M(QZ)
D652	8-719-034-46	DIODE	MA4062-M(QZ)
D654	8-719-034-46	DIODE	MA4062-M(QZ)
D655	8-719-034-46	DIODE	MA4062-M(QZ)
D656	8-719-034-46	DIODE	MA4062-M(QZ)
D657	8-719-034-46	DIODE	MA4062-M(QZ)
D701	8-719-053-18	DIODE	1SR154-400TE-25
D711	8-719-053-18	DIODE	1SR154-400TE-25
D751	8-719-050-86	DIODE	1SS133T-91S
D781	8-719-034-46	DIODE	MA4062-M(QZ)
D782	8-719-034-98	DIODE	MA4200-M(QZ)
D783	8-719-049-38	DIODE	1N5404TU
D901	8-719-053-18	DIODE	1SR154-400TE-25
D999	8-719-050-86	DIODE	1SS133T-91S

< IC >

Ref. No.	Part No.	Description	
IC11	8-759-823-81	IC	LC7216M
IC21	8-759-242-66	IC	TC4W66F
IC51	8-759-163-63	IC	TDA7330BD-013TR
IC301	8-759-160-99	IC	HA12174
IC321	8-759-331-72	IC	NJM4558E-D(TE2)
IC331	8-759-823-87	IC	LB1638M
IC351	8-752-071-19	IC	CXA1946Q
IC352	8-759-711-85	IC	NJM4580E-D
IC371	8-759-262-37	IC	TA2050F(EL)
IC381	8-759-262-37	IC	TA2050F(EL)
IC391	8-752-068-73	IC	CXA1846M-T6
IC501	8-759-333-09	IC	uPD78056GC-060-3B9
IC531	8-759-167-83	IC	PST600EMT-T1
IC551	8-759-351-21	IC	MN1883220SZJ
IC571	8-759-096-16	IC	MM1175XFF
IC601	8-759-182-75	IC	BA3910B-V2
IC781	8-759-260-77	IC	HA13150A

MAIN

Ref. No.	Part No.	Description				Remark
		< JACK >				
J1	1-764-808-11	JACK (ANTENNA)				
J561	1-566-822-11	JACK (REMOTE IN)				
		< JUMPER RESISTOR >				
JC501	1-216-295-00	METAL CHIP	0	5%	1/10W	
JC502	1-216-295-00	METAL CHIP	0	5%	1/10W	
JC901	1-216-295-00	METAL CHIP	0	5%	1/10W	
		< COIL >				
L3	1-414-146-31	INDUCTOR	2.2uH			
L4	1-414-146-31	INDUCTOR	2.2uH			
L11	1-410-509-11	INDUCTOR	10uH			
L31	1-410-196-11	INDUCTOR CHIP	2.2uH			
L51	1-410-509-11	INDUCTOR	10uH			
L501	1-410-509-11	INDUCTOR	10uH			
L581	1-410-509-11	INDUCTOR	10uH			
		< TRANSISTOR >				
Q1	8-729-421-22	TRANSISTOR	UN2211			
Q2	8-729-424-08	TRANSISTOR	UN2111			
Q3	8-729-106-68	TRANSISTOR	2SD1615A-GP			
Q5	8-729-230-49	TRANSISTOR	2SC2712-YG			
Q21	8-729-021-94	TRANSISTOR	2SK1657-T1B			
Q22	8-729-106-68	TRANSISTOR	2SD1615A-GP			
Q23	8-729-421-22	TRANSISTOR	UN2211			
Q52	8-729-020-67	TRANSISTOR	XN1A312-TX			
Q61	8-729-424-70	TRANSISTOR	UN2217			
Q71	8-729-424-70	TRANSISTOR	UN2217			
Q81	8-729-424-70	TRANSISTOR	UN2217			
Q171	8-729-920-21	TRANSISTOR	DTC314TKH04			
Q181	8-729-920-21	TRANSISTOR	DTC314TKH04			
Q191	8-729-920-21	TRANSISTOR	DTC314TKH04			
Q271	8-729-920-21	TRANSISTOR	DTC314TKH04			
Q281	8-729-920-21	TRANSISTOR	DTC314TKH04			
Q291	8-729-920-21	TRANSISTOR	DTC314TKH04			
Q321	8-729-020-67	TRANSISTOR	XN1A312-TX			
Q331	8-729-015-11	TRANSISTOR	2SD1802FAST-TL			
Q332	8-729-424-08	TRANSISTOR	UN2111			
Q334	8-729-106-60	TRANSISTOR	2SB1115A-YQ			
Q501	8-729-421-22	TRANSISTOR	UN2211			
Q502	8-729-230-49	TRANSISTOR	2SC2712-YG			
Q503	8-729-230-49	TRANSISTOR	2SC2712-YG			
Q504	8-729-421-22	TRANSISTOR	UN2211			
Q505	8-729-421-22	TRANSISTOR	UN2211			
Q541	8-729-021-94	TRANSISTOR	2SK1657-T1B			
Q542	8-729-424-08	TRANSISTOR	UN2111			
Q543	8-729-021-94	TRANSISTOR	2SK1657-T1B			
Q551	8-729-424-08	TRANSISTOR	UN2111			
Q552	8-729-424-08	TRANSISTOR	UN2111			
Q571	8-729-424-08	TRANSISTOR	UN2111			
Q572	8-729-230-49	TRANSISTOR	2SC2712-YG			
Q603	8-729-421-22	TRANSISTOR	UN2211			
Q606	8-729-230-49	TRANSISTOR	2SC2712-YG			
Q651	8-729-106-60	TRANSISTOR	2SB1115A-YQ			
Q652	8-729-421-22	TRANSISTOR	UN2211			
Q653	8-729-106-60	TRANSISTOR	2SB1115A-YQ			
Q654	8-729-421-22	TRANSISTOR	UN2211			
Q655	8-729-030-18	TRANSISTOR	2SD2525			
Q656	8-729-424-08	TRANSISTOR	UN2111			
		< RESISTOR >				
R3	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R5	1-216-119-00	METAL CHIP	820K	5%	1/10W	
R6	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R7	1-216-041-00	METAL CHIP	470	5%	1/10W	
R8	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R9	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R10	1-216-647-11	METAL CHIP	680	0.5%	1/10W	
R11	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R12	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R13	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W	
R14	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R15	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R21	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R22	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R23	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R24	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R25	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R26	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R27	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R28	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R29	1-216-037-00	METAL CHIP	330	5%	1/10W	
R53	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R54	1-216-129-00	METAL CHIP	2.2M	5%	1/10W	
R61	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W	
R62	1-216-673-11	METAL CHIP	8.2K	0.5%	1/10W	(AEP, UK)
R62	1-208-814-11	METAL GLAZE	22K	2%	1/10W	(G)
R63	1-216-673-11	METAL CHIP	8.2K	0.5%	1/10W	
R64	1-216-673-11	METAL CHIP	8.2K	0.5%	1/10W	
R65	1-216-687-11	METAL CHIP	33K	0.5%	1/10W	
R66	1-216-687-11	METAL CHIP	33K	0.5%	1/10W	
R67	1-216-649-11	METAL CHIP	820	0.5%	1/10W	
R68	1-208-822-11	METAL GLAZE	47K	2%	1/10W	
R71	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W	

Ref. No.	Part No.	Description			Remark
R72	1-216-673-11	METAL CHIP	8.2K	0.5%	1/10W (AEP, UK)
R72	1-208-814-11	METAL GLAZE	22K	2%	1/10W (G)
R73	1-216-673-11	METAL CHIP	8.2K	0.5%	1/10W
R74	1-216-673-11	METAL CHIP	8.2K	0.5%	1/10W
R75	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R76	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R77	1-216-649-11	METAL CHIP	820	0.5%	1/10W
R78	1-208-822-11	METAL GLAZE	47K	2%	1/10W
R81	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W (AEP, UK)
R81	1-216-651-11	METAL CHIP	1K	0.5%	1/10W (G)
R82	1-208-806-11	METAL GLAZE	10K	2%	1/10W (AEP, UK)
R82	1-208-822-11	METAL GLAZE	47K	2%	1/10W (G)
R101	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R102	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R103	1-208-812-11	METAL GLAZE	18K	2%	1/10W
R104	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R105	1-218-764-11	METAL GLAZE	330K	2%	1/10W
R106	1-208-814-11	METAL GLAZE	22K	2%	1/10W
R107	1-208-776-11	METAL GLAZE	560	2%	1/10W
R108	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W
R109	1-208-806-11	METAL GLAZE	10K	2%	1/10W
R151	1-208-810-11	METAL GLAZE	15K	2%	1/10W
R152	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R153	1-208-810-11	METAL GLAZE	15K	2%	1/10W
R154	1-208-806-11	METAL GLAZE	10K	2%	1/10W
R171	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R172	1-208-822-11	METAL GLAZE	47K	2%	1/10W
R173	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R174	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R175	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R176	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R177	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R181	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R182	1-208-822-11	METAL GLAZE	47K	2%	1/10W
R183	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R184	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R185	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R186	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R187	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R191	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R192	1-208-814-11	METAL GLAZE	22K	2%	1/10W
R193	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R194	1-208-822-11	METAL GLAZE	47K	2%	1/10W
R201	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R202	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R203	1-208-812-11	METAL GLAZE	18K	2%	1/10W

Ref. No.	Part No.	Description			Remark
R204	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R205	1-218-764-11	METAL GLAZE	330K	2%	1/10W
R206	1-208-814-11	METAL GLAZE	22K	2%	1/10W
R207	1-208-776-11	METAL GLAZE	560	2%	1/10W
R208	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W
R209	1-208-806-11	METAL GLAZE	10K	2%	1/10W
R251	1-208-810-11	METAL GLAZE	15K	2%	1/10W
R252	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R253	1-208-810-11	METAL GLAZE	15K	2%	1/10W
R254	1-208-806-11	METAL GLAZE	10K	2%	1/10W
R271	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R272	1-208-822-11	METAL GLAZE	47K	2%	1/10W
R273	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R274	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R275	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R276	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R277	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R281	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R282	1-208-822-11	METAL GLAZE	47K	2%	1/10W
R283	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R284	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R285	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R286	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R287	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R291	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R292	1-208-814-11	METAL GLAZE	22K	2%	1/10W
R293	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R294	1-208-822-11	METAL GLAZE	47K	2%	1/10W
R301	1-208-812-11	METAL GLAZE	18K	2%	1/10W
R302	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R303	1-208-812-11	METAL GLAZE	18K	2%	1/10W
R304	1-216-097-00	METAL CHIP	100K	5%	1/10W
R305	1-218-764-11	METAL GLAZE	330K	2%	1/10W
R306	1-216-113-00	METAL CHIP	470K	5%	1/10W
R307	1-216-097-00	METAL CHIP	100K	5%	1/10W
R321	1-208-806-11	METAL GLAZE	10K	2%	1/10W
R322	1-208-806-11	METAL GLAZE	10K	2%	1/10W
R331	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R332	1-220-149-11	METAL GLAZE	2.2	10%	1/2W
R333	1-208-806-11	METAL GLAZE	10K	2%	1/10W
R334	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R351	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W
R352	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W
R353	1-208-814-11	METAL GLAZE	22K	2%	1/10W
R354	1-208-814-11	METAL GLAZE	22K	2%	1/10W
R355	1-208-810-11	METAL GLAZE	15K	2%	1/10W
R356	1-208-810-11	METAL GLAZE	15K	2%	1/10W
R371	1-208-774-11	METAL GLAZE	470	2%	1/10W
R381	1-208-774-11	METAL GLAZE	470	2%	1/10W

MAIN

Ref. No.	Part No.	Description				Remark
R506	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R507	1-208-814-11	METAL GLAZE	22K	2%	1/10W	
R508-513	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R514	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R515	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R516	1-208-822-11	METAL GLAZE	47K	2%	1/10W	
R517	1-218-760-11	METAL GLAZE	220K	2%	1/10W	
R518	1-208-822-11	METAL GLAZE	47K	2%	1/10W	
R519	1-218-760-11	METAL GLAZE	220K	2%	1/10W	
R520	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R521	1-208-814-11	METAL GLAZE	22K	2%	1/10W	
R522	1-208-822-11	METAL GLAZE	47K	2%	1/10W	
R523	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R524	1-208-814-11	METAL GLAZE	22K	2%	1/10W	
R525	1-208-814-11	METAL GLAZE	22K	2%	1/10W	
R526	1-216-295-00	METAL CHIP	0	5%	1/10W	
R528	1-216-037-00	METAL CHIP	330	5%	1/10W	
R529	1-216-246-00	METAL GLAZE	100K	5%	1/8W	
R530	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R531-535	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R536	1-216-246-00	METAL GLAZE	100K	5%	1/8W	
R537-539	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R542	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R551-553	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R554	1-208-774-11	METAL GLAZE	470	2%	1/10W	
R555	1-216-025-00	METAL CHIP	100	5%	1/10W	
R561	1-216-025-00	METAL CHIP	100	5%	1/10W	
R562	1-216-025-00	METAL CHIP	100	5%	1/10W	
R563	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R571	1-216-001-00	METAL CHIP	10	5%	1/10W	
R572	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R573	1-216-025-00	METAL CHIP	100	5%	1/10W	
R574	1-216-025-00	METAL CHIP	100	5%	1/10W	
R575	1-208-822-11	METAL GLAZE	47K	2%	1/10W	
R576	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R581	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R582-584	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R588	1-216-097-00	METAL CHIP	100K	5%	1/10W	(G)
R589	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R590	1-216-097-00	METAL CHIP	100K	5%	1/10W	(AEP, UK)
R591	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R593	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R594	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R596	1-216-097-00	METAL CHIP	100K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R601	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R606	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R607	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R608	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R651	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R652	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R653-656	1-216-162-00	METAL GLAZE	33	5%	1/8W	
R657	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R658	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R660	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R661-664	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R665	1-216-025-00	METAL CHIP	100	5%	1/10W	
R666	1-216-025-00	METAL CHIP	100	5%	1/10W	
R667	1-216-198-00	METAL GLAZE	1K	5%	1/8W	
R668	1-208-806-11	METAL GLAZE	10K	0.50%	1/10W	
R669	1-208-806-11	METAL GLAZE	10K	0.50%	1/10W	
R670	1-218-478-11	METAL GLAZE	330	5%	1/4W	
R671	1-218-478-11	METAL GLAZE	330	5%	1/4W	
R701	1-216-635-11	METAL CHIP	220	0.5%	1/10W	
R702	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R703	1-216-298-00	METAL CHIP	2.2	5%	1/10W	
R704	1-216-298-00	METAL CHIP	2.2	5%	1/10W	
R711	1-216-635-11	METAL CHIP	220	0.5%	1/10W	
R712	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R713	1-216-298-00	METAL CHIP	2.2	5%	1/10W	
R714	1-216-298-00	METAL CHIP	2.2	5%	1/10W	
R721	1-216-635-11	METAL CHIP	220	0.5%	1/10W	
R722	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R723	1-216-298-00	METAL CHIP	2.2	5%	1/10W	
R724	1-216-298-00	METAL CHIP	2.2	5%	1/10W	
R731	1-216-635-11	METAL CHIP	220	0.5%	1/10W	
R732	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R733	1-216-298-00	METAL CHIP	2.2	5%	1/10W	
R734	1-216-298-00	METAL CHIP	2.2	5%	1/10W	
R751	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W	
R752	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W	
R761	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R762	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W	
R771	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R772	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W	
R781	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R782	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R783	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R784	1-208-806-11	METAL GLAZE	10K	2%	1/10W	
R901	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R998	1-216-296-00	METAL CHIP	0	5%	1/8W	

Ref. No.	Part No.	Description	Remark
		< NETWORK RESISTOR >	
RB501	1-239-426-11	NETWORK RESISTOR (CHIP) 2.2KX4	
		< VARIABLE RESISTOR >	
RV1	1-238-861-11	RES, ADJ, CERMET 470K	
RV101	1-238-852-11	RES, ADJ, CERMET 470	
RV201	1-238-852-11	RES, ADJ, CERMET 470	
		< SWITCH >	
S501	1-571-478-11	SWITCH, SLIDE (POWER SELECT)	
S551	1-692-431-21	SWITCH, TACTILE (RESET)	
S791	1-762-284-11	SWITCH, SLIDE (LINE OUT/IN SELECT)	
		< TUNER >	
TU1	A-3282-003-A	TUNER UNIT (TUX-001A)	
		< VIBRATOR >	
X11	1-577-126-51	VIBRATOR, CRYSTAL (7.2MHz)	
X51	1-760-556-11	VIBRATOR, CRYSTAL (4.3MHz)	
X501	1-760-489-11	VIBRATOR, CERAMIC (5MHz)	
X502	1-579-886-21	VIBRATOR, CRYSTAL (32.67kHz)	
X581	1-579-952-21	VIBRATOR, CERAMIC (8MHz)	